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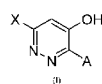
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CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB,
GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS,

(54) Title: PYRIDAZINOL COMPOUND, DERIVATIVE THEREOF, PREPARATION METHOD THEREFOR, HERBICIDAL COMPOSITION AND USE THEREOF

(54) 发明名称: 哒嗪醇类化合物及其衍生物、制备方法、除草组合物和应用



(57) Abstract: The present invention relates to the field of pesticide technology, and specifically discloses a pyridazinol compound as represented by general formula I, a derivative thereof, a preparation method therefor, a herbicidal composition thereof and use thereof. The compound, derivative thereof and herbicidal composition thereof have very high herbicidal activity and are safe and selective for crops. (formula I).

(57) 摘要: 本发明属于农药技术领域, 具体公开了一种如通式I所示的哒嗪醇类化合物、其衍生物、制备方法、除草组合物和应用。所述化合物及其衍生物、除草组合物的具有非常高的除草活性且对作物安全、选择性好, (式I)。



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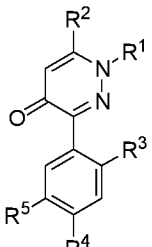
吡嗪醇类化合物及其衍生物、制备方法、除草组合物和应用

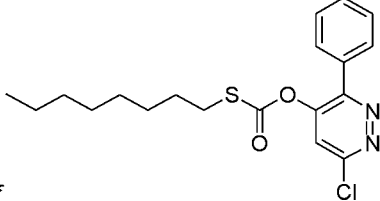
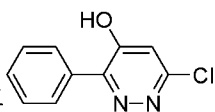
技术领域

本发明属于农药技术领域，具体涉及一种吡嗪醇类化合物及其衍生物、制备方法、除草组合物和应用。

背景技术

杂草的防治是实现高效农业过程中一个至关重要的环节，目前市场上的除草剂种类多样，如原卟啉原氧化酶抑制剂类除草剂和光系统 II 抑制剂类除草剂等等，其中专利 CN106316962A 公开了一种原卟啉原氧化酶抑制剂类除草剂 3-芳基吡嗪酮类化合物，其结构

式为 ，对农业阔叶杂草、农田禾本科杂草和莎草科杂草均具有控制效果；而吡嗪类

除草剂如吡草特 、吡嗪醇  等则属于光系统 II 抑制剂类除草剂，通过阻塞电子传递和光能的转移，从而抑制光合作用的进行。

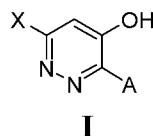
由于市场的不断扩大、杂草的抗性、药物的使用寿命以及药物的经济性问题以及人们对环境的日益重视，需要科学家们不断研究进而开发出新的高效、安全、经济以及具有不同作用方式的除草剂品种。

发明内容

为解决现有技术中存在的上述问题，本发明提供了一种吡嗪醇类化合物及其衍生物、制备方法、除草组合物和应用，所述化合物及其衍生物、组合物的除草活性非常高且对作物安全、选择性好。

本发明采用的技术方案如下：

一种如通式 I 所示的吡嗪醇类化合物及其衍生物：



其中，X 代表卤代烷基、氰基、烷基、烷氧基、卤代烷氧基、 $R_1R_2N-(C=O)-$ 、 R_1R_2N- 、

羟基、未取代或取代的芳基；

A 代表未取代或取代的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基以及未取代或取代的芳基、杂芳基或脂杂环基；

所述“取代的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，未取代或取代的芳基、杂芳基，

$-(CH_2)_n-O-(CH_2)_p-$, $-(CH_2)_n-S-(CH_2)_p-$, $-(CH_2)_n-NR_3-(CH_2)_p-$, $R-O-$, $R-O-(CH_2)_p-O-$,
 $R-O-(CH_2)_p-S-$, $R-S-$, $R-S-(CH_2)_p-O-$, $R-S-(CH_2)_p-S-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,
 $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-(C=O)-$, $R-(C=S)-$, $R-(C=O)-(CH_2)_n-O-$,
 $R-(C=S)-(CH_2)_n-S-$, $R-(C=O)-(CH_2)_n-S-$, $R-(C=S)-(CH_2)_n-O-$, $R-SO-(CH_2)_n-(O)_m-$,
 $R-SO-(CH_2)_n-(S)_m-$, $R-SO-(CH_2)_n-(NR_3)_m-$, $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-(S)_m-$,
 $R-SO_2-(CH_2)_n-(NR_3)_m-$, R_1R_2N- , $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(O)_m-$,
 $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(NR_3)_m-$,
 $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-$
 $(C=O)-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(S)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(NR_3)_m-$, $R_1R_2P(O)-(O)_m-$, $R_1R_2R_3SiO-$, $R_1R_2R_3Si-(CH=CH)_m-$,
 $R_1R_2C=N-(O)_m-$, $R_1R_2C=N-NH-$;

所述“取代的芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代：

卤素，氰基，硝基，叠氮基，含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基，未取代或取代的芳基、芳基烷基、杂芳基、杂芳基烷基、脂杂环基或脂杂环基烷基，
 $R-O-(CH_2)_n-$, $R-O-(CH_2)_p-O-(CH_2)_q-$, $R-O-(CH_2)_p-S-(CH_2)_q-$, $R-S-(CH_2)_n-$,
 $R-S-(CH_2)_p-O-(CH_2)_q-$, $R-S-(CH_2)_p-S-(CH_2)_q-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,
 $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-(C=O)-(CH_2)_n-$, $R-(C=S)-(CH_2)_n-$,
 $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$, $R-(C=S)-(CH_2)_n-S-(CH_2)_q-$, $R-(C=O)-(CH_2)_n-S-(CH_2)_q-$,
 $R-(C=S)-(CH_2)_n-O-(CH_2)_q-$, $R-SO-(CH_2)_n-(O)_m-$, $R-SO-(CH_2)_n-(S)_m-$, $R-SO-(CH_2)_n-(NR_3)_m-$,
 $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-(S)_m-$, $R-SO_2-(CH_2)_n-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-$,

$R_1R_2N-(CH_2)_n-O-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(S)_m-$,
 $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(NR_3)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(S)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(NR_3)_m-$, $R_1R_2PO_3-(O)_m-(CH_2)_q-$, $R_1R_2R_3SiO-(CH_2)_q-$,
 $R_1R_2R_3Si-(CH=CH)_m-(CH_2)_q-$, $R_1R_2C=N-(O)_m-(CH_2)_n-$, $R_1R_2C=N-NH-(CH_2)_n-$;

m 为 0 或 1, n 、 q 分别代表 0~8 之间的整数, p 代表 1~8 之间的整数;

R 代表氢, 含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基, 以及未取代或取代的芳基、芳基烷基、杂芳基、杂芳基烷基;

R_1 、 R_2 、 R_3 分别独立地代表氢, 硝基, 羟基, 氨基, 含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基、烷氧基、烯基氧基、炔基氧基、环烷基氧基、烷氧基烷基、烷氧基羰基、烷硫基羰基、烷基磺酰基、烷基磺酰基烷基、烷基羰基、烷基羰基烷基、烷基酰氧基、烷基氨基、烷基氨基羰基、烷氧基氨基羰基、烷氧基羰基烷基、烷氨基羰基烷基、三烷基甲硅烷基、二烷基膦酰基, 以及未取代或取代的芳基、芳基烷基、芳基氧基、芳基烷基氧基、芳基氧基烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基烷基、杂芳基氧基、杂芳基烷基氧基、杂芳基氧基烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基烷基、脂杂环基氧基、脂杂环基烷基氧基、脂杂环基氧基烷基、脂杂环基羰基、脂杂环基磺酰基; 或者 R_1R_2N -形成五元或六元杂环基。

如本申请中所使用的, 术语“杂芳基”是指环上含有至少一个 (例如 1、2、3、4 个) 选自 N、O 和 S 的杂原子的具有芳香性的基团, 如 5-14 元杂芳基、5-10 元杂芳基、5-9 元杂芳基、5-6 元杂芳基。当所述杂芳基的环成员中包括 N 原子时, 其还包括所述 N 原子被取代基取代的杂芳基。在一些优选的实施方案中, 所述取代基选自氢, 硝基, 羟基, 氨基, 含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{1-6} 烷氧基、 C_{2-6} 烯基氧基、 C_{2-6} 炔基氧基、 C_{3-6} 环烷基氧基、 C_{1-6} 烷氧基 C_{1-6} 烷基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷硫基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基磺酰基 C_{1-6} 烷基、 C_{1-6} 烷基羰基、 C_{1-6} 烷基羰基 C_{1-6} 烷基、 C_{1-6} 烷基酰氧基、 C_{1-6} 烷基氨基、 C_{1-6} 烷基氨基羰基、 C_{1-6} 烷氧基氨基羰基、 C_{1-6} 烷氧基羰基 C_{1-6} 烷基、 C_{1-6} 烷氨基羰基 C_{1-6} 烷基、三 C_{1-6} 烷基甲硅烷基、二 C_{1-6} 烷基膦酰基, 以及未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、芳基

氧基、芳基 C_{1-6} 烷基氧基、芳基氧基 C_{1-6} 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C_{1-6} 烷基、杂芳基氧基、杂芳基 C_{1-6} 烷基氧基、杂芳基氧基 C_{1-6} 烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基 C_{1-6} 烷基、脂杂环基氧基、脂杂环基 C_{1-6} 烷基氧基、脂杂环基氧基 C_{1-6} 烷基、脂杂环基羰基、脂杂环基磺酰基。

在一些优选的实施方案中，X 代表卤代 C_{1-8} 烷基、氰基、 C_{1-8} 烷基、 C_{1-8} 烷氧基、卤代 C_{1-8} 烷氧基、 $R_1R_2N-(C=O)-$ 、 R_1R_2N- 、羟基、未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{1-8} 烷氧基、 C_{1-8} 烷基羰基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基氨基或 C_{1-8} 烷基酰氧基中的基团所取代的芳基；

A 代表未取代或取代的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基；

所述“取代的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{1-8} 烷氧基、 C_{1-8} 烷基羰基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基氨基或 C_{1-8} 烷基酰氧基中的基团所取代的芳基、杂芳基， $-(CH_2)_n-O-(CH_2)_p-$ ， $-(CH_2)_n-S-(CH_2)_p-$ ，

$-(CH_2)_n-NR_3-(CH_2)_p-$ ， $R-O-$ ， $R-O-(CH_2)_p-O-$ ， $R-O-(CH_2)_p-S-$ ， $R-S-$ ， $R-S-(CH_2)_p-O-$ ，

$R-S-(CH_2)_p-S-$ ， $R-O-(C=O)-(CH_2)_q-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-$ ，

$R-S-(C=S)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_n-(C=S)-(S)_m-$ ， $R-S-(CH_2)_n-(C=S)-$ ，

$R-O-(C=O)-(CH_2)_q-(S)_m-$ ， $R-O-(CH_2)_n-(C=O)-(S)_m-$ ， $R-O-(C=S)-(CH_2)_q-(O)_m-$ ，

$R-O-(CH_2)_n-(C=S)-(O)_m-$ ， $R-O-(CH_2)_n-(C=S)-$ ， $R-S-(C=O)-(CH_2)_q-(O)_m-$ ，

$R-S-(CH_2)_n-(C=O)-(O)_m-$ ， $R-S-(CH_2)_n-(C=O)-$ ， $R-O-(C=S)-(CH_2)_q-(S)_m-$ ，

$R-O-(CH_2)_n-(C=S)-(S)_m-$ ， $R-S-(C=O)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_n-(C=O)-(S)_m-$ ，

$R-S-(C=S)-(CH_2)_q-(O)_m-$ ， $R-S-(CH_2)_n-(C=S)-(O)_m-$ ， $R-(C=O)-$ ， $R-(C=S)-$ ， $R-(C=O)-O-$ ，

$R-(C=S)-S-$ ， $R-(C=O)-S-$ ， $R-(C=S)-O-$ ， $R-SO-(O)_m-$ ， $R-SO-(S)_m-$ ， $R-SO-(NR_3)_m-$ ， $R-SO_2-(O)_m-$ ，

$R-SO_2-(S)_m-$ ， $R-SO_2(NR_3)_m-$ ， R_1R_2N- ， $R_1R_2N-O-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_n-O-$ ，

$R_1R_2N-O-(CH_2)_q-(S)_m-$ ， $R_1R_2N-O-(CH_2)_q-(NR_3)_m-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$ ，

$R_1R_2N-(CH_2)_n-(C=O)-(O)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(S)_m-$ ，

$R_1R_2N-(CH_2)_n-(C=O)-(S)_m-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(NR_3)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-(NR_3)_m-$ ，

$R_1R_2N-SO_2-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-(O)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-$ ，

$R_1R_2N-SO_2-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(S)_m-$, $R_1R_2N-SO_2-(CH_2)_q-(NR_3)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(NR_3)_m-$, $R_1R_2P(O)-$, $R_1R_2R_3SiO-$, $R_1R_2R_3Si-(CH=CH)_m-$, $R_1R_2C=N-(O)_m-$,
 $R_1R_2C=N-NH-$;

所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，含有或不含有卤素的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{1-8} 烷氧基、 C_{1-8} 烷基羰基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基氨基或 C_{1-8} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-8} 烷基、杂芳基、杂芳基 C_{1-8} 烷基、脂杂环基或脂杂环基 C_{1-8} 烷基， $R-O-(CH_2)_n-$ ，

$R-O-(CH_2)_p-O-(CH_2)_q-$, $R-O-(CH_2)_p-S-(CH_2)_q-$, $R-S-(CH_2)_n-$, $R-S-(CH_2)_p-O-(CH_2)_q-$,
 $R-S-(CH_2)_p-S-(CH_2)_q-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=S)-(CH_2)_q-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-$, $R-S-(C=S)-(CH_2)_q-(S)_m-$,
 $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R-O-(C=S)-(CH_2)_q-(O)_m-$, $R-S-(C=O)-(CH_2)_q-(O)_m-$,
 $R-O-(C=S)-(CH_2)_q-(S)_m-$, $R-S-(C=O)-(CH_2)_q-(S)_m-$, $R-S-(C=S)-(CH_2)_q-(O)_m-$,
 $R-S-(CH_2)_n-(C=S)-(S)_m-$, $R-O-(CH_2)_n-(C=S)-(O)_m-$, $R-S-(CH_2)_n-(C=O)-(O)_m-$,
 $R-O-(CH_2)_n-(C=S)-(S)_m-$, $R-S-(CH_2)_n-(C=O)-(S)_m-$, $R-S-(CH_2)_n-(C=S)-(O)_m-$,
 $R-(C=O)-(CH_2)_n-$, $R-(C=S)-$, $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$, $R-(C=S)-(CH_2)_n-S-$,
 $R-(C=O)-(CH_2)_n-S-$, $R-(C=S)-(CH_2)_n-O-$, $R-(C=S)-S-(CH_2)_q-$, $R-(C=O)-S-(CH_2)_q-$,
 $R-(C=S)-O-(CH_2)_q-$, $R-SO-(O)_m-$, $R-SO-(S)_m-$, $R-SO-(NR_3)_m-$, $R-SO_2-(CH_2)_n-(O)_m-$,
 $R-SO_2-(S)_m-$, $R-SO_2-(CH_2)_n-(NR_3)_m-$, $R-SO-(CH_2)_n-$, $R_1R_2N-(CH_2)_n-$,
 $R_1R_2N-(CH_2)_n-O-(CH_2)_q-$, $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-$,
 $R_1R_2N-(CH_2)_n-(C=O)-(O)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(S)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(NR_3)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(S)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(NR_3)_m-$,
 $R_1R_2N-(C=O)-(CH_2)_n-(O)_m-$, $R_1R_2N-(C=O)-(CH_2)_n-(S)_m-$, $R_1R_2N-(C=O)-(CH_2)_n-(NR_3)_m-$,
 $R_1R_2N-SO_2-(CH_2)_q-(S)_m-$, $R_1R_2N-SO_2-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-O-$, $R_1R_2N-O-(CH_2)_q-$,
 $R_1R_2P(O)-(O)_m-$, $R_1R_2R_3SiO-$, $R_1R_2R_3Si-(CH=CH)_m-$, $R_1R_2C=N-(O)_m-$, $R_1R_2C=N-NH-$;

m 为 0 或 1, n 、 q 分别代表 0~6 之间的整数, p 代表 1~6 之间的整数;

R 代表氢, 含有或不含有卤素的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基, 以及未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基

C₁₋₈烷基、C₂₋₈烯基、C₂₋₈炔基、C₁₋₈烷氧基、C₁₋₈烷基羰基、C₁₋₈烷氧基羰基、C₁₋₈烷基磺酰基、C₁₋₈烷基氨基或C₁₋₈烷基酰氧基中的基团所取代的芳基、芳基C₁₋₈烷基、杂芳基、杂芳基C₁₋₈烷基；

R₁、R₂、R₃分别独立地代表氢，硝基，羟基，氨基，含有或不含有卤素的C₁₋₈烷基、C₂₋₈烯基、C₂₋₈炔基、C₃₋₈环烷基、C₃₋₈环烯基、C₃₋₈环烷基C₁₋₈烷基、C₁₋₈烷氧基、C₂₋₈烯基氧基、C₂₋₈炔基氧基、C₃₋₈环烷基氧基、C₁₋₈烷氧基C₁₋₈烷基、C₁₋₈烷氧基羰基、C₁₋₈烷基羰基C₁₋₈烷基、C₁₋₈烷硫基羰基、C₁₋₈烷基磺酰基、C₁₋₈烷基磺酰基C₁₋₈烷基、C₁₋₈烷基羰基、C₁₋₈烷基酰氧基、C₁₋₈烷基氨基、C₁₋₈烷基氨基羰基、C₁₋₈烷氧基氨基羰基、C₁₋₈烷氧基羰基C₁₋₈烷基、C₁₋₈烷氨基羰基C₁₋₈烷基、三C₁₋₈烷基甲硅烷基、二C₁₋₈烷基膦酰基，以及未取代或被1~5个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的C₁₋₈烷基、C₃₋₈环烷基、C₃₋₈环烯基、C₃₋₈环烷基C₁₋₈烷基、C₂₋₈烯基、C₂₋₈炔基、C₁₋₈烷氧基、C₁₋₈烷基羰基、C₁₋₈烷氧基羰基、C₁₋₈烷基磺酰基、C₁₋₈烷基氨基或C₁₋₈烷基酰氧基中的基团所取代的芳基、芳基C₁₋₈烷基、芳基氧基、芳基C₁₋₈烷基氧基、芳基氧基C₁₋₈烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基C₁₋₈烷基、杂芳基氧基、杂芳基C₁₋₈烷基氧基、杂芳基氧基C₁₋₈烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基C₁₋₈烷基、脂杂环基氧基、脂杂环基C₁₋₈烷基氧基、脂杂环基氧基C₁₋₈烷基、脂杂环基羰基、脂杂环基磺酰基；或者R₁R₂N-形成五元或六元杂环基；

所述衍生物是指农业上可接受的盐或通式I中哒嗪环4位上的羟基衍生物。

在一些优选的实施方案中，X代表卤代C₁₋₆烷基；

A代表未取代或取代的C₁₋₆烷基、C₂₋₆烯基、C₂₋₆炔基、C₃₋₆环烷基、C₃₋₆环烯基、C₃₋₆环烷基C₁₋₆烷基以及未取代或取代的5~14元芳基、杂芳基或脂杂环基；

所述“取代的C₁₋₆烷基、C₂₋₆烯基、C₂₋₆炔基、C₃₋₆环烷基、C₃₋₆环烯基、C₃₋₆环烷基C₁₋₆烷基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，未取代或被1~3个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的C₁₋₆烷基、C₃₋₆环烷基、C₃₋₆环烯基、C₃₋₆环烷基C₁₋₆烷基、C₂₋₆烯基、C₂₋₆炔基、C₁₋₆烷氧基、C₁₋₆烷基羰基、C₁₋₆烷氧基羰基、C₁₋₆烷基磺酰基、C₁₋₆烷基氨基或C₁₋₆烷基酰氧基中的基团所取代的芳基、杂芳基，-(CH₂)_n-O-，-(CH₂)_n-S-，-(CH₂)_n-NR₃-，R-O-，R-O-(CH₂)_p-O-，R-O-(CH₂)_p-S-，R-S-，R-S-(CH₂)_p-O-，R-S-(CH₂)_p-S-，R-O-(CH₂)_n-(C=O)-，R-S-(C=S)-，R-O-(C=S)-，R-S-(C=O)-，R-(C=O)-，R-(C=S)-，R-(C=O)-O-，R-(C=S)-S-，R-(C=O)-S-，R-(C=S)-O-，R-SO-，R-SO₂-，R₁R₂N-，R₁R₂N-O-，R₁R₂N-(C=O)-，R₁R₂N-SO₂-，R₁R₂P(O)-，R₁R₂R₃SiO-，R₁R₂R₃Si-(CH=CH)-，R₁R₂R₃Si-，R₁R₂C=N-(O)-，R₁R₂C=N-

$R_1R_2C=N-NH-$;

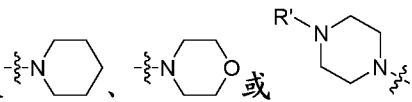
所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团的中的一种或多种所取代：卤素，氰基，硝基，叠氮基，含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基和 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、杂芳基、杂芳基 C_{1-6} 烷基、脂杂环基或脂杂环基 C_{1-6} 烷基， $R-O-(CH_2)_n-$ ， $R-O-(CH_2)_p-O-$ ， $R-O-(CH_2)_p-S-$ ， $R-S-(CH_2)_n-$ ， $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_p-O-$ ， $R-S-(CH_2)_p-S-$ ， $R-S-(C=S)-(S)_m-$ ， $R-O-(C=S)-(O)_m-$ ， $R-S-(CH_2)_n-(C=O)-(O)_m-$ ， $R-O-(C=S)-(S)_m-$ ， $R-S-(C=O)-(S)_m-$ ， $R-S-(C=S)-(O)_m-$ ， $R-S-(C=S)-(CH_2)_q-$ ， $R-O-(C=S)-(CH_2)_q-$ ， $R-S-(C=O)-(CH_2)_q-$ ， $R-S-(CH_2)_n-(C=S)-$ ， $R-O-(CH_2)_n-(C=S)-$ ， $R-S-(CH_2)_n-(C=O)-$ ， $R-(C=O)-(CH_2)_n-$ ， $R-(C=S)-$ ， $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$ ， $R-(C=S)-S-$ ， $R-(C=O)-S-$ ， $R-(C=S)-O-$ ， $R-SO-(CH_2)_n-$ ， $R-SO_2-(CH_2)_n-(O)_m-$ ， $R-SO_2-(CH_2)_n-(NR_3)_m-$ ， $R_1R_2N-(CH_2)_n-$ ， R_1R_2N-O- ， $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(C=O)-(S)_m-$ ， $R_1R_2N-(C=O)-(NR_3)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_p-(C=O)-$ ， $R_1R_2N-(CH_2)_p-O-$ ， $R_1R_2N-O-(CH_2)_p-$ ， $R_1R_2P(O)-$ ， $R_1R_2R_3SiO-$ ， $R_1R_2R_3Si-$ ， $R_1R_2R_3Si-CH=CH-$ ， $R_1R_2C=N-$ ， $R_1R_2C=N-O-$ ， $R_1R_2C=N-NH-$;

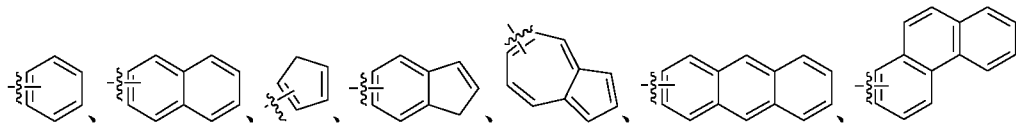
m 为 0 或 1， n 、 q 分别代表 0~4 之间的整数， p 代表 1~4 之间的整数；

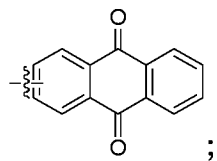
R 代表氢，含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基，以及未取代或被 1~3 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、杂芳基、杂芳基 C_{1-6} 烷基；

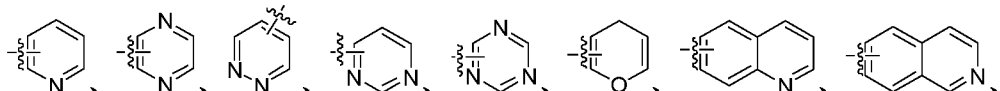
R_1 、 R_2 、 R_3 分别独立地代表氢，硝基，羟基，氨基，含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{1-6} 烷氧基、 C_{2-6} 烯基氧基、 C_{2-6} 炔基氧基、 C_{3-6} 环烷基氧基、 C_{1-6} 烷氧基 C_{1-6} 烷基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷硫基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基磺酰基 C_{1-6} 烷基、 C_{1-6} 烷基羰基、 C_{1-6} 烷基羰基 C_{1-6} 烷基、 C_{1-6} 烷基酰氧基、 C_{1-6} 烷基氨基、 C_{1-6} 烷基氨基羰基、 C_{1-6} 烷氧基氨基羰基、 C_{1-6} 烷氧

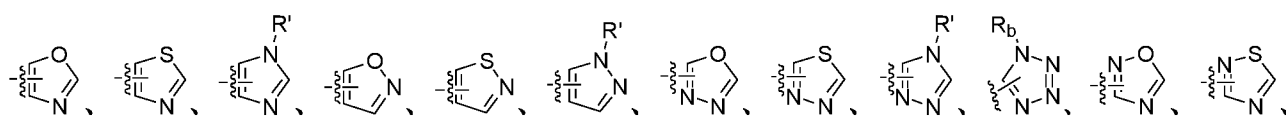
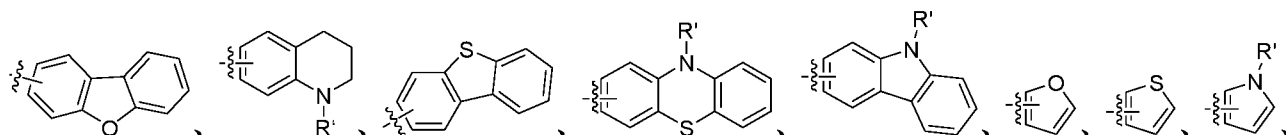
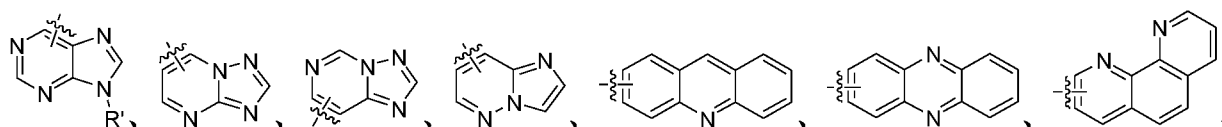
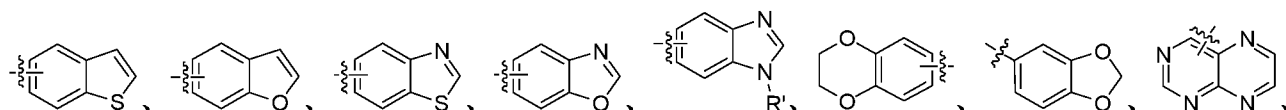
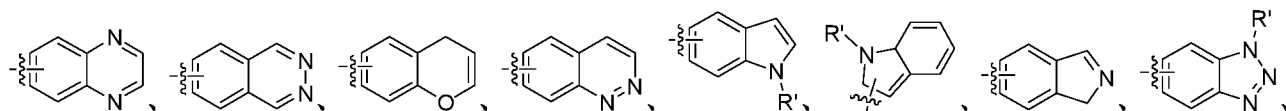
基羰基 C_{1-6} 烷基、 C_{1-6} 烷氨基羰基 C_{1-6} 烷基、三 C_{1-6} 烷基甲硅烷基、二 C_{1-6} 烷基磷酰基，以及未取代或被 1~3 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、芳基氧基、芳基 C_{1-6} 烷基氧基、芳基氧基 C_{1-6} 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C_{1-6} 烷基、杂芳基氧基、杂芳基 C_{1-6} 烷基氧基、杂芳基氧基 C_{1-6} 烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基 C_{1-6} 烷基、脂杂环基氧基、脂杂环基 C_{1-6} 烷基氧基、脂杂环基氧基 C_{1-6} 烷基、脂杂环基羰基、脂杂环基

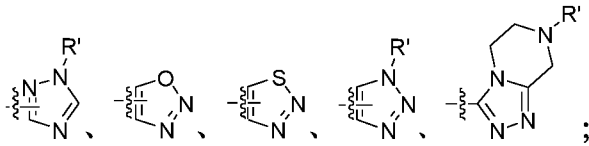
磺酰基；或者 R_1R_2N -代表  或

所述芳基选自 、

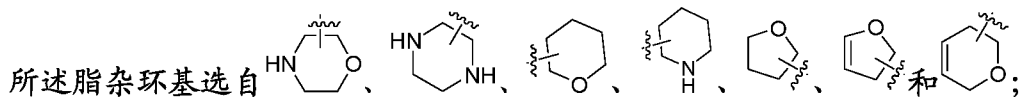


所述杂芳基选自 、





R' 代表氢, 硝基, 羟基, 氨基, 含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{1-6} 烷氧基、 C_{2-6} 烯基氧基、 C_{2-6} 炔基氧基、 C_{3-6} 环烷基氧基、 C_{1-6} 烷氧基 C_{1-6} 烷基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷硫基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基磺酰基 C_{1-6} 烷基、 C_{1-6} 烷基羰基、 C_{1-6} 烷基羰基 C_{1-6} 烷基、 C_{1-6} 烷基酰氧基、 C_{1-6} 烷基氨基、 C_{1-6} 烷基氨基羰基、 C_{1-6} 烷氧基氨基羰基、 C_{1-6} 烷氧基羰基 C_{1-6} 烷基、 C_{1-6} 烷氨基羰基 C_{1-6} 烷基、三 C_{1-6} 烷基甲硅烷基、二 C_{1-6} 烷基膦酰基, 以及未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、芳基氧基、芳基 C_{1-6} 烷基氧基、芳基氧基 C_{1-6} 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C_{1-6} 烷基、杂芳基氧基、杂芳基 C_{1-6} 烷基氧基、杂芳基氧基 C_{1-6} 烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基 C_{1-6} 烷基、脂杂环基氧基、脂杂环基 C_{1-6} 烷基氧基、脂杂环基氧基 C_{1-6} 烷基、脂杂环基羰基、脂杂环基磺酰基;



所述衍生物是指农业上可接受的盐或通式 I 中哒嗪环 4 位上的羟基衍生物, 包括其酯、肟、羟胺和醚类衍生物。

在一些优选的实施方案中, X 代表卤代 C_{1-6} 烷基;

A 代表未取代或取代的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{3-6} 环烷基、 C_{3-6} 环烯基, 以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基;

所述“取代的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{3-6} 环烷基、 C_{3-6} 环烯基”是指被选自以下基团中的一种或多种所取代: $R-O-(CH_2)_n-(C=O)-$ 和 $R_1R_2R_3SiO-$;

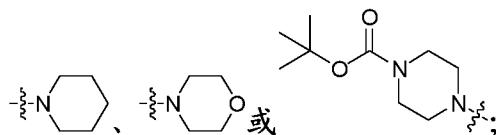
所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代: 卤素, 氰基, 硝基, 叠氮基, 含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-6} 烷基, 未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6}

烷基氨基和 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、杂芳基、杂芳基 C_{1-6} 烷基、脂杂环基或脂杂环基 C_{1-6} 烷基, $R-O-(CH_2)_n-$, $R-O-(CH_2)_p-O-$, $R-S-(CH_2)_n-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R-S-(CH_2)_n-(C=O)-$, $R-(C=O)-(CH_2)_n-$, $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$, $R-SO-(CH_2)_n-$, $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-(NR_3)_m-$, $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$, $R_1R_2N-(C=O)-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-$, $R_1R_2P(O)-$, 和 $R_1R_2R_3Si-$;

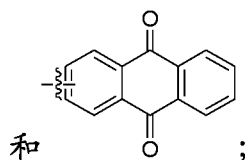
m 为 0 或 1, n 、 q 分别代表 0~4 之间的整数, p 代表 1~4 之间的整数;

R 代表氢, 含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基或 C_{3-6} 环烷基 C_{1-6} 烷基, 以及未取代或被 1~3 个独立选自卤素中的基团所取代的 5~14 元芳基、5~14 元芳基 C_{1-4} 烷基或 5~14 元杂芳基;

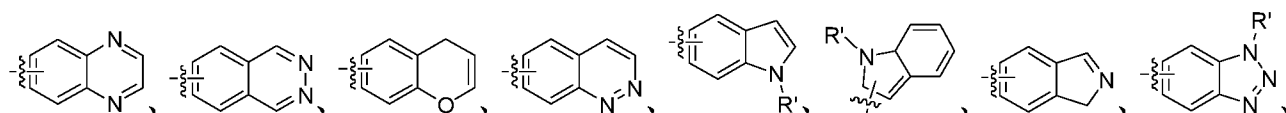
R_1 、 R_2 、 R_3 分别独立地代表氢, 硝基, 羟基, 氨基, 含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{1-6} 烷氧基、 C_{1-6} 烷氧基 C_{1-6} 烷基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基羰基、 C_{1-6} 烷基羰基 C_{1-6} 烷基、 C_{1-6} 烷基酰氧基, 以及未取代或被 1~3 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基和 C_{1-6} 烷基酰氧基中的基团所取代的 5~14 元芳基、5~14 元芳基 C_{1-6} 烷基、5~14 元芳基氧基、5~14 元芳基羰基、5~14 元杂芳基、5~14 元杂芳基 C_{1-6} 烷基、5~14 元杂芳基氧基、5~14 元杂芳基羰基和 5~14 元脂杂环基羰基; 或者 R_1R_2N- 代表

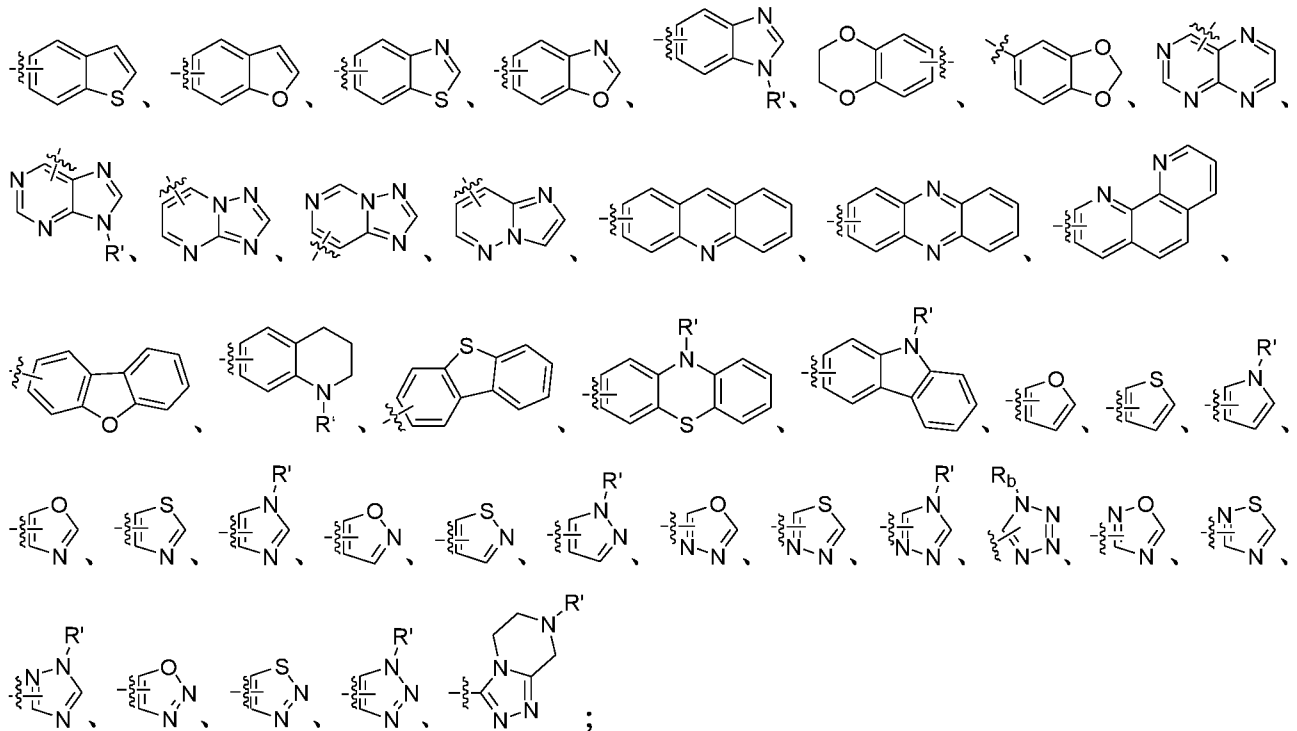


所述芳基选自



所述杂芳基选自





R' 代表氢, 含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{1-6} 烷氧基 C_{1-6} 烷基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基羰基, 脂杂环基, 苯基或苄基;

所述脂杂环基选自 和 ;

所述衍生物是指农业上可接受的盐或通式 I 中吡嗪环 4 位上的羟基衍生物, 包括其酯、肟、羟胺和醚类衍生物。

在一些优选的实施方案中, X 代表卤代 C_{1-4} 烷基;

A 代表未取代或取代的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{3-6} 环烷基、 C_{3-6} 环烯基, 以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基;

所述“取代的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{3-6} 环烷基、 C_{3-6} 环烯基”是指被选自以下基团中的一种或多种所取代: $R-O-(C=O)-$ 和 $R_1R_2R_3SiO-$;

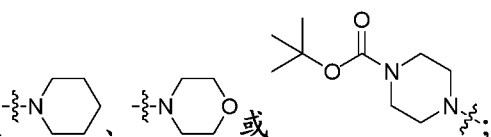
所述“5~14 元取代的芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代: 氟, 氯, 溴, 碘, 氰基, 硝基, 叠氮基, 含有或不含有氟、氯或溴的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-4} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-4} 烷基, 未取代或被 1~3 个独立选自氟、氯、溴、氰基、羟基、以及含有或不含有氟、氯或溴的 C_{1-4} 烷基、 C_{1-4} 烷氧基、 C_{1-4} 烷氧基羰基、 C_{1-4} 烷基磺酰基和 C_{1-4} 烷基氨基的基团所取代的芳基、芳基 C_{1-4} 烷基、杂芳基、杂芳基 C_{1-4} 烷基或脂杂环基, $R-O-(CH_2)_n-$, $R-O-CH_2-O-$, $R-S-(CH_2)_n-$, $R-O-(CH_2)_n-(C=O)-$, $R-O-(CH_2)_n-(C=O)-O-$, $R-O-(C=O)-(CH_2)_q-O-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-S-$, $R-S-(CH_2)_n-(C=O)-$, $R-(C=O)-(CH_2)_n-$, $R-(C=O)-O-(CH_2)_q-$, $R-(C=O)-(CH_2)_n-O-$,

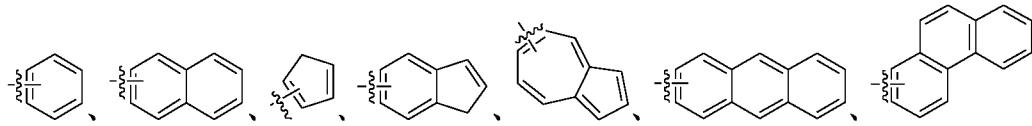
$R-SO-(CH_2)_n-$, $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-NR_3-$, $R_1R_2N-(C=O)-(CH_2)_q-$,
 $R_1R_2N-(C=O)-(CH_2)_q-O-$, $R_1R_2N-(C=O)-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-$,
 $R_1R_2P(O)-$ 和 $R_1R_2R_3Si-$;

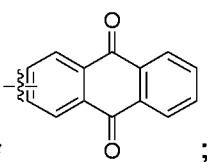
m 为 0 或 1, n 、 q 分别代表 0、1、2 或 3 之间的整数, p 代表 1、2 或 3 之间的整数;

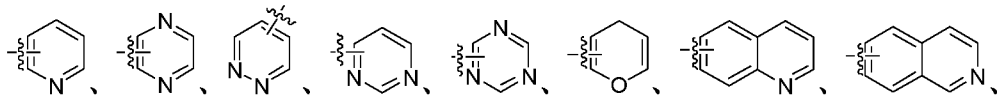
R 代表氢, 含有或不含有卤素的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基或 C_{3-6} 环烷基 C_{1-4} 烷基, 以及未取代或被 1~3 个独立选自氟、氯、溴中的基团所取代的 5~14 元芳基、5~14 元芳基 C_{1-2} 烷基或 5~6 元杂芳基;

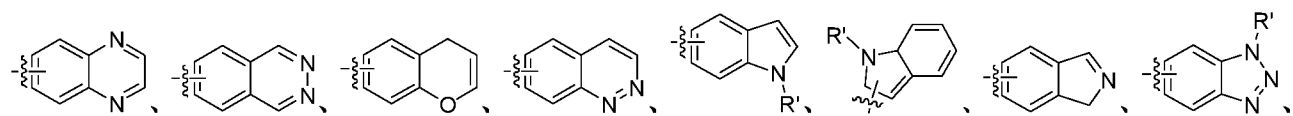
R_1 、 R_2 、 R_3 分别独立地代表氢, 含有或不含有氟、氯或溴的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-4} 炔基、 C_{3-6} 环烷基、 C_{1-4} 烷氧基、 C_{1-4} 烷氧基 C_{1-4} 烷基、 C_{1-4} 烷氧基羰基、 C_{1-4} 烷基羰基、 C_{1-4} 烷基羰基 C_{1-4} 烷基、 C_{1-4} 烷基酰氧基, 以及未取代或被 1~3 个独立选自氟、氯、溴、 C_{1-4} 烷基、 C_{1-4} 烷氧基、 C_{1-4} 烷基氨基和 C_{3-6} 环烷基中的基团所取代的 5~14 元芳基、5~14 元芳基氧基、5~14 元芳基羰基、5~6 元杂芳基、5~6 元杂芳基 C_{1-4} 烷基和 5~6 元杂芳基羰基; 或

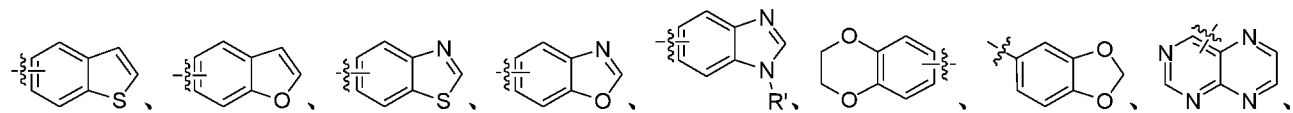
者 R_1R_2N- 代表 ;

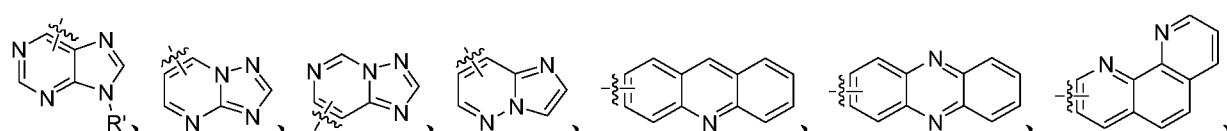
所述芳基选自 ;

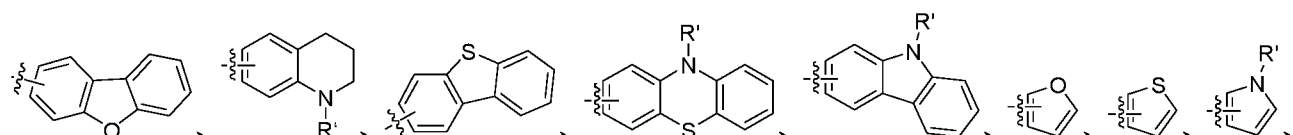
和  ;

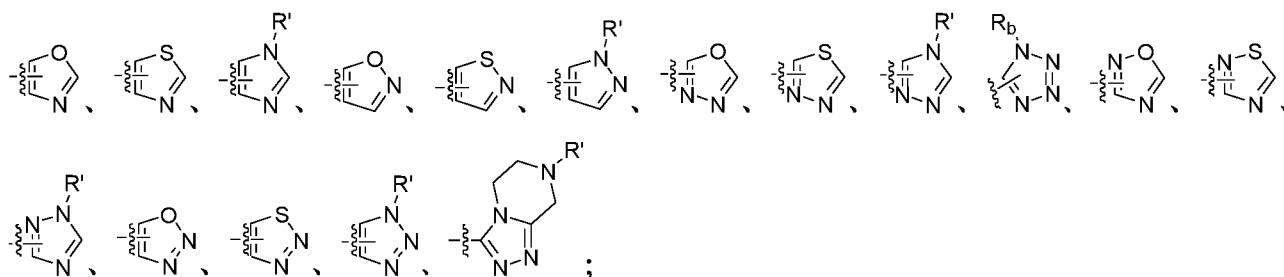
所述杂芳基选自 ;

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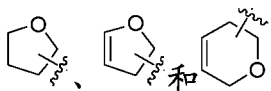
;



R' 代表氢, 含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{1-4} 烷氧基 C_{1-4} 烷基、 C_{1-4} 烷氧基羰基、 C_{1-4} 烷基羰基,

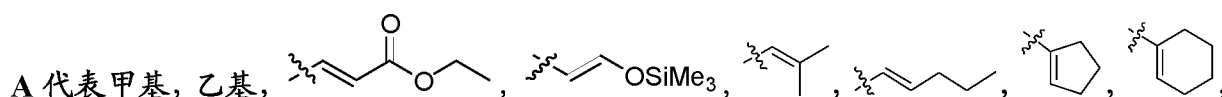


基、 C_{1-4} 烷基羰基, 苯基或苄基;

所述脂杂环基选自  和 ;

所述衍生物是指农业上可接受的盐或通式 I 中哒嗪环 4 位上的羟基衍生物, 包括其酯、肟、羟胺和醚类衍生物。

在一些优选的实施方案中, X 代表 CH_2F 、 CHF_2 、 CF_3 、 CF_2CF_3 ;

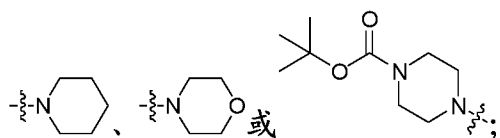


以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基;

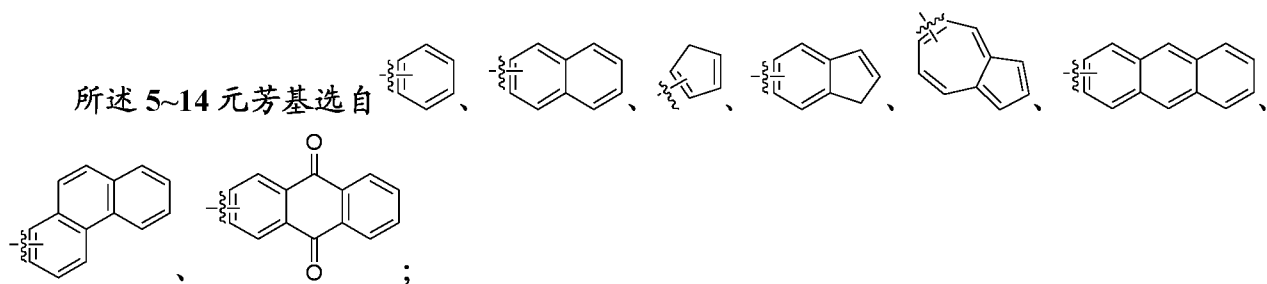
所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代: 氟, 氯, 溴, 碘, 氰基, 硝基, 叠氮基, 含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-4} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-2} 烷基, 未取代或被 1~3 个独立选自氟、氯、溴、氰基、羟基以及含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{1-4} 烷氧基、 C_{1-4} 烷氧基羰基、 C_{1-4} 烷基磺酰基或 C_{1-4} 烷基氨基中的基团所取代的苯基、吡咯基、呋喃基、咪唑基、吡唑基、噁唑基、异噁唑基、噻唑基、噁二唑基、噻二唑基、三唑基、吡啶基、吡嗪基、嘧啶基、苄基、四氢吡喃基或噻吩基甲基, $R-O-$, $R-O-CH_2-$, $R-O-CH_2CH_2-$, $R-O-CH_2-O-$, $R-O-(C=O)-$, $R-O-CH_2-(C=O)-$, $R-O-CH_2-(C=O)-O-$, $R-O-(C=O)-CH_2-O-$, $R-O-(C=O)-CH_2CH_2-O-$, $R-O-(C=O)-CH_2-S-$, $R-O-CH_2-(C=O)-S-$, $R-O-CH_2-(C=O)-CH_2-S-$, $R-S-CH_2-$, $R-S-$, $R-S-(C=O)-$, $R-S-CH_2-(C=O)-$, $R-(C=O)-CH_2-$, $R-(C=O)-$, $R-(C=O)-O-CH_2-$, $R-(C=O)-CH_2-O-$, $R-(C=O)-CH_2CH_2-O-$, $R-(C=O)-O-$, $R-SO-CH_2-$, $R-SO-$, $R-SO_2-CH_2-O-$, $R-SO_2-CH_2-$, $R-SO_2-O-$, $R-SO_2-$, $R-SO_2-CH_2-NR_3-$, $R-SO_2-NR_3-$, $R_1R_2N-CH_2-$, R_1R_2N- , $R_1R_2N-(C=O)-CH_2-$, $R_1R_2N-(C=O)-CH_2-O-$, $R_1R_2N-(C=O)-$, $R_1R_2N-(C=O)-NR_3-$, $R_1R_2N-CH_2-SO_2-$, $R_1R_2N-CH_2-SO_2-CH_2-$, $R_1R_2N-SO_2-CH_2-$, $R_1R_2N-SO_2-$, $R_1R_2P(O)-$ 和 $R_1R_2R_3Si-$;

R 代表氢, 含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-4} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-2} 烷基, 以及未取代或被 1~3 个独立选自氟、氯、溴中的基团所取代的苯基、苄基或噻吩基;

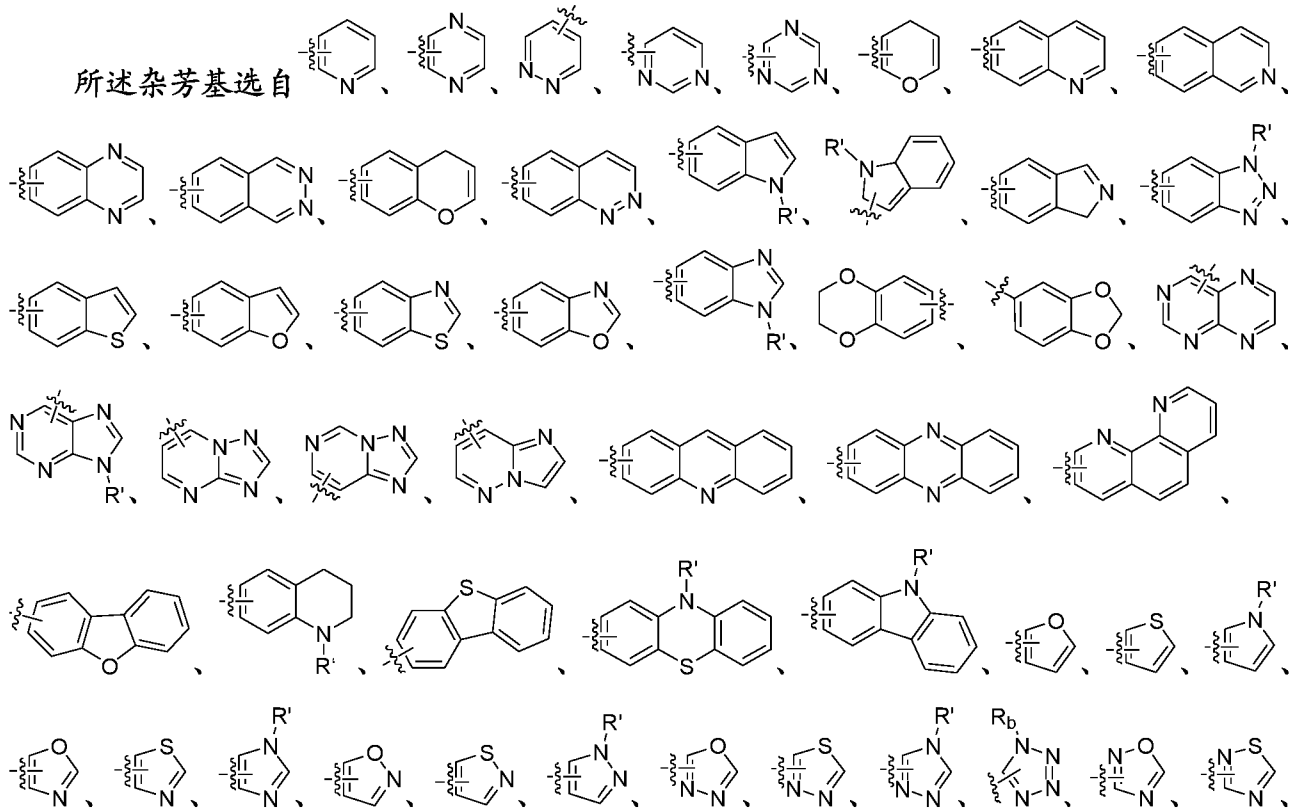
R_1 、 R_2 、 R_3 分别独立地代表氢, 含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-4} 炔基、 C_{3-6} 环烷基、 C_{1-4} 烷氧基、 C_{1-4} 烷氧基 C_{1-2} 烷基、 C_{1-4} 烷氧基羰基、 C_{1-4} 烷基羰基、 C_{1-4} 烷基羰基 C_{1-2} 烷基、 C_{1-4} 烷基酰氧基、以及未取代或被 1~3 个独立选自氟、氯、溴、 C_{1-4} 烷基、 C_{3-6} 环烷基、 C_{1-4} 烷氧基和 C_{1-4} 烷基氨基中的基团所取代的苯基、萘基、苯氧基、呋喃基、噻吩基、噻二唑基、噻吩甲基、吡唑甲基、苯甲酰基或吡啶甲酰基; 或者 R_1R_2N -代表

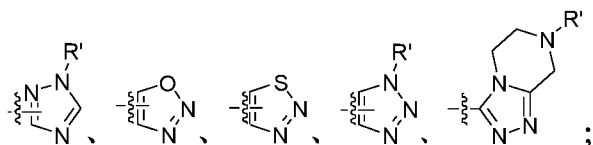


所述 5~14 元芳基选自

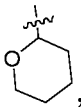


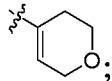
所述杂芳基选自





R' 代表氢, 含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{1-4} 烷氧基 C_{1-2} 烷基、 C_{1-4} 烷氧基羰

基、 C_{1-4} 烷基羰基, , 苯基或苄基;

所述脂杂环基选自 , .

所述衍生物是指农业上可接受的盐或通式 I 中哒嗪环 4 位上的羟基衍生物, 包括其酯、肟、羟胺和醚类衍生物。

在一些优选的实施方案中, X 代表卤代烷基、氰基、烷基、烷氧基、卤代烷氧基、 $R_1R_2N-(C=O)-$ 、 R_1R_2N- 、羟基、未取代或取代的芳基;

A 代表未取代或取代的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基以及未取代或取代的芳基、杂芳基;

所述“取代的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基”是指被选自以下基团中的一种或多种所取代: 卤素, 氰基, 硝基, 叠氮基, 未取代或取代的芳基、杂芳基, $-(CH_2)_n-O-(CH_2)_p-$, $-(CH_2)_n-S-(CH_2)_p-$, $-(CH_2)_n-NR_3-(CH_2)_p-$, $R-O-$, $R-O-(CH_2)_p-O-$, $R-O-(CH_2)_p-S-$, $R-S-$, $R-S-(CH_2)_p-O-$, $R-S-(CH_2)_p-S-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-(C=O)-$, $R-(C=S)-$, $R-(C=O)-(CH_2)_n-O-$, $R-(C=S)-(CH_2)_n-S-$, $R-(C=O)-(CH_2)_n-S-$, $R-(C=S)-(CH_2)_n-O-$, $R-SO-(CH_2)_n-(O)_m-$, $R-SO-(CH_2)_n-(S)_m-$, $R-SO-(CH_2)_n-(NR_3)_m-$, $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-(S)_m-$, $R-SO_2-(CH_2)_n-(NR_3)_m-$, R_1R_2N- , $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(NR_3)_m-$, $R_1R_2PO_3-(O)_m-$, $R_1R_2R_3SiO-$, $R_1R_2R_3Si-(CH=CH)_m-$, $R_1R_2C=N-(O)_m-$, $R_1R_2C=N-NH-$;

所述“取代的芳基、杂芳基”是指被选自以下基团中的一种或多种所取代: 卤素, 氰基,

硝基, 叠氮基, 含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基, 未取代或取代的芳基、芳基烷基、杂芳基、杂芳基烷基, $R-O-(CH_2)_n-$,

$R-O-(CH_2)_p-O-(CH_2)_q-$, $R-O-(CH_2)_p-S-(CH_2)_q-$, $R-S-(CH_2)_n-$, $R-S-(CH_2)_p-O-(CH_2)_q-$,

$R-S-(CH_2)_p-S-(CH_2)_q-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$,

$R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$,

$R-S-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$,

$R-S-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-(C=O)-(CH_2)_n-$,

$R-(C=S)-(CH_2)_n-$, $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$, $R-(C=S)-(CH_2)_n-S-(CH_2)_q-$,

$R-(C=O)-(CH_2)_n-S-(CH_2)_q-$, $R-(C=S)-(CH_2)_n-O-(CH_2)_q-$, $R-SO-(CH_2)_n-(O)_m-$,

$R-SO-(CH_2)_n-(S)_m-$, $R-SO-(CH_2)_n-(NR_3)_m-$, $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-(S)_m-$,

$R-SO_2-(CH_2)_n-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-$, $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(O)_m-$,

$R_1R_2N-(CH_2)_n-O-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(NR_3)_m-$,

$R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,

$R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$,

$R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(NR_3)_m-$, $R_1R_2PO_3-(O)_m-(CH_2)_q-$,

$R_1R_2R_3SiO-(CH_2)_q-$, $R_1R_2R_3Si-(CH=CH)_m-(CH_2)_q-$, $R_1R_2C=N-(O)_m-(CH_2)_n-$,

$R_1R_2C=N-NH-(CH_2)_n-$;

m 为 0 或 1, n 、 q 分别代表 0~8 之间的整数, p 代表 1~8 之间的整数; 其中, 上述基团中各 m 、 n 、 q 、 p 分别独立地取值, 且取值使各取代基之间互不相同;

R 代表氢, 含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基, 以及未取代或取代的芳基、芳基烷基、杂芳基、杂芳基烷基;

R_1 、 R_2 、 R_3 分别独立地代表氢, 硝基, 羟基, 氨基, 含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基、烷氧基、烯基氧基、炔基氧基、环烷基氧基、烷氧基烷基、烷氧基羰基、烷硫基羰基、烷基磺酰基、烷基磺酰基烷基、烷基羰基、烷基羰基烷基、烷基酰氧基、烷基氨基、烷基氨基羰基、烷氧基氨基羰基、烷氧基羰基烷基、烷氨基羰基烷基、三烷基甲硅烷基、二烷基膦酰基, 以及未取代或取代的六元杂环基、芳基、芳基烷基、芳基氧基、芳基烷基氧基、芳基氧基烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基烷基、杂芳基氧基、杂芳基烷基氧基、杂芳基氧基烷基、杂芳基羰基、杂芳基磺酰基; 或者 R_1R_2N- 代表六元杂环基。

在一些优选的实施方案中, X 代表卤代 C_{1-8} 烷基、氰基、 C_{1-8} 烷基、 C_{1-8} 烷氧基、卤代 C_{1-8} 烷氧基、 $R_1R_2N-(C=O)-$ 、 R_1R_2N- 、羟基、未取代或被 1~5 个独立选自卤素、氰基、硝基、

羟基、羧基、巯基、氨基以及含有或不含有卤素的 C₁₋₈ 烷基、C₃₋₈ 环烷基、C₃₋₈ 环烷基 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₁₋₈ 烷氧基、C₁₋₈ 烷基羰基、C₁₋₈ 烷氧基羰基、C₁₋₈ 烷基磺酰基、C₁₋₈ 烷基氨基或 C₁₋₈ 烷基酰氧基中的基团所取代的芳基；

A 代表未取代或取代的 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基以及未取代或取代的 5~14 元芳基、杂芳基；

所述“取代的 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C₁₋₈ 烷基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₁₋₈ 烷氧基、C₁₋₈ 烷基羰基、C₁₋₈ 烷氧基羰基、C₁₋₈ 烷基磺酰基、C₁₋₈ 烷基氨基或 C₁₋₈ 烷基酰氧基中的基团所取代的芳基、杂芳基， $-(CH_2)_n-O-(CH_2)_p-$ ， $-(CH_2)_n-S-(CH_2)_p-$ ， $-(CH_2)_n-NR_3-(CH_2)_p-$ ， $R-O-$ ， $R-O-(CH_2)_p-O-$ ， $R-O-(CH_2)_p-S-$ ， $R-S-$ ， $R-S-(CH_2)_p-O-$ ， $R-S-(CH_2)_p-S-$ ， $R-O-(C=O)-(CH_2)_q-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-$ ， $R-S-(C=S)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_n-(C=S)-(S)_m-$ ， $R-S-(CH_2)_n-(C=S)-$ ， $R-O-(C=O)-(CH_2)_q-(S)_m-$ ， $R-O-(CH_2)_n-(C=O)-(S)_m-$ ， $R-O-(C=S)-(CH_2)_q-(O)_m-$ ， $R-O-(CH_2)_n-(C=S)-(O)_m-$ ， $R-O-(CH_2)_n-(C=S)-$ ， $R-S-(C=O)-(CH_2)_q-(O)_m-$ ， $R-S-(CH_2)_n-(C=O)-(O)_m-$ ， $R-S-(CH_2)_n-(C=O)-$ ， $R-O-(C=S)-(CH_2)_q-(S)_m-$ ， $R-O-(CH_2)_n-(C=S)-(S)_m-$ ， $R-S-(C=O)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_n-(C=O)-(S)_m-$ ， $R-S-(C=S)-(CH_2)_q-(O)_m-$ ， $R-S-(CH_2)_n-(C=S)-(O)_m-$ ， $R-(C=O)-$ ， $R-(C=S)-$ ， $R-(C=O)-O-$ ， $R-(C=S)-S-$ ， $R-(C=O)-S-$ ， $R-(C=S)-O-$ ， $R-SO-(O)_m-$ ， $R-SO-(S)_m-$ ， $R-SO-(NR_3)_m-$ ， $R-SO_2-(O)_m-$ ， $R-SO_2-(S)_m-$ ， $R-SO_2(NR_3)_m-$ ， R_1R_2N- ， $R_1R_2N-O-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_n-O-$ ， $R_1R_2N-O-(CH_2)_q-(S)_m-$ ， $R_1R_2N-O-(CH_2)_q-(NR_3)_m-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-(O)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(S)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-(S)_m-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(NR_3)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-(NR_3)_m-$ ， $R_1R_2N-SO_2-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-(O)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-$ ， $R_1R_2N-SO_2-(CH_2)_q-(S)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-(S)_m-$ ， $R_1R_2N-SO_2-(CH_2)_q-(NR_3)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-(NR_3)_m-$ ， $R_1R_2PO_3-$ ， $R_1R_2R_3SiO-$ ， $R_1R_2R_3Si-(CH=CH)_m-$ ， $R_1R_2C=N-(O)_m-$ ， $R_1R_2C=N-NH-$ ；

所述“取代的 5~14 元芳基、杂芳基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，含有或不含有卤素的 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、

羧基、巯基、氨基以及含有或不含有卤素的 C₁₋₈ 烷基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₁₋₈ 烷氧基、C₁₋₈ 烷基羰基、C₁₋₈ 烷氧基羰基、C₁₋₈ 烷基磺酰基、C₁₋₈ 烷基氨基或 C₁₋₈ 烷基酰氧基中的基团所取代的芳基、芳基 C₁₋₈ 烷基、杂芳基、杂芳基 C₁₋₈ 烷基, R-O-(CH₂)_n-, R-O-(CH₂)_p-O-(CH₂)_q-, R-O-(CH₂)_p-S-(CH₂)_q-, R-S-(CH₂)_n-, R-S-(CH₂)_p-O-(CH₂)_q-, R-S-(CH₂)_p-S-(CH₂)_q-, R-O-(CH₂)_n-(C=O)-(CH₂)_q-, R-S-(CH₂)_n-(C=S)-(CH₂)_q-, R-O-(CH₂)_n-(C=S)-(CH₂)_q-, R-S-(CH₂)_n-(C=O)-(CH₂)_q-, R-O-(C=O)-(CH₂)_q-(O)_m-, R-S-(C=S)-(CH₂)_q-(S)_m-, R-O-(C=O)-(CH₂)_q-(S)_m-, R-O-(C=S)-(CH₂)_q-(O)_m-, R-S-(C=O)-(CH₂)_q-(O)_m-, R-O-(C=S)-(CH₂)_q-(S)_m-, R-S-(C=O)-(CH₂)_q-(S)_m-, R-S-(C=S)-(CH₂)_q-(O)_m-, R-O-(CH₂)_n-(C=O)-(O)_m-, R-S-(CH₂)_n-(C=S)-(S)_m-, R-O-(CH₂)_n-(C=O)-(S)_m-, R-O-(CH₂)_n-(C=S)-(O)_m-, R-S-(CH₂)_n-(C=O)-(O)_m-, R-O-(CH₂)_n-(C=S)-(S)_m-, R-S-(CH₂)_n-(C=O)-(S)_m-, R-S-(CH₂)_n-(C=S)-(O)_m-, R-(C=O)-, R-(C=S)-, R-(C=O)-(CH₂)_n-O-, R-(C=S)-(CH₂)_n-S-, R-(C=O)-(CH₂)_n-S-, R-(C=S)-(CH₂)_n-O-, R-(C=O)-O-(CH₂)_q-, R-(C=S)-S-(CH₂)_q-, R-(C=O)-S-(CH₂)_q-, R-(C=S)-O-(CH₂)_q-, R-SO-(O)_m-, R-SO-(S)_m-, R-SO-(NR₃)_m-, R-SO₂-(O)_m-, R-SO₂-(S)_m-, R-SO₂-(NR₃)_m-, R-SO-(CH₂)_n-, R-SO₂-(CH₂)_n-, R₁R₂N-, R₁R₂N-(CH₂)_n-O-(CH₂)_q-, R₁R₂N-(CH₂)_n-(C=O)-(CH₂)_q-, R₁R₂N-(CH₂)_n-SO₂-(CH₂)_q-, R₁R₂N-(CH₂)_n-(C=O)-(O)_m-, R₁R₂N-(CH₂)_n-(C=O)-(S)_m-, R₁R₂N-(CH₂)_n-(C=O)-(NR₃)_m-, R₁R₂N-(CH₂)_n-SO₂-(O)_m-, R₁R₂N-(CH₂)_n-SO₂-(S)_m-, R₁R₂N-(CH₂)_n-SO₂-(NR₃)_m-, R₁R₂N-(C=O)-(CH₂)_n-(O)_m-, R₁R₂N-(C=O)-(CH₂)_n-(S)_m-, R₁R₂N-(C=O)-(CH₂)_n-(NR₃)_m-, R₁R₂N-SO₂-(CH₂)_q-(O)_m-, R₁R₂N-SO₂-(CH₂)_q-(S)_m-, R₁R₂N-SO₂-(CH₂)_q-(NR₃)_m-, R₁R₂N-(CH₂)_n-O-, R₁R₂N-O-(CH₂)_q-, R₁R₂PO₃-(O)_m-, R₁R₂R₃SiO-, R₁R₂R₃Si-(CH=CH)_m-, R₁R₂C=N-(O)_m-, R₁R₂C=N-NH-

m 为 0 或 1, n、q 分别代表 0~6 之间的整数, p 代表 1~6 之间的整数; 其中, 上述基团中各 m、n、q、p 分别独立地取值, 且取值使各取代基之间互不相同;

R 代表氢, 含有或不含有卤素的 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基, 以及未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C₁₋₈ 烷基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₁₋₈ 烷氧基、C₁₋₈ 烷基羰基、C₁₋₈ 烷氧基羰基、C₁₋₈ 烷基磺酰基、C₁₋₈ 烷基氨基或 C₁₋₈ 烷基酰氧基中的基团所取代的芳基、芳基 C₁₋₈ 烷基、杂芳基、杂芳基 C₁₋₈ 烷基;

R₁、R₂、R₃ 分别独立地代表氢, 硝基, 羟基, 氨基, 含有或不含有卤素的 C₁₋₈ 烷基、

C₂₋₈ 烯基、C₂₋₈ 炔基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基、C₁₋₈ 烷氧基、C₂₋₈ 烯基氧基、C₂₋₈ 炔基氧基、C₃₋₈ 环烷基氧基、C₁₋₈ 烷氧基 C₁₋₈ 烷基、C₁₋₈ 烷氧基羰基、C₁₋₈ 烷基羰基 C₁₋₈ 烷基、C₁₋₈ 烷硫基羰基、C₁₋₈ 烷基磺酰基、C₁₋₈ 烷基磺酰基 C₁₋₈ 烷基、C₁₋₈ 烷基羰基、C₁₋₈ 烷基酰氧基、C₁₋₈ 烷基氨基、C₁₋₈ 烷基氨基羰基、C₁₋₈ 烷氧基氨基羰基、C₁₋₈ 烷氧基羰基 C₁₋₈ 烷基、C₁₋₈ 烷氨基羰基 C₁₋₈ 烷基、三 C₁₋₈ 烷基甲硅烷基、二 C₁₋₈ 烷基膦酰基，以及未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C₁₋₈ 烷基、C₃₋₈ 环烷基、C₅₋₈ 环烯基、C₃₋₈ 环烷基 C₁₋₈ 烷基、C₂₋₈ 烯基、C₂₋₈ 炔基、C₁₋₈ 烷氧基、C₁₋₈ 烷基羰基、C₁₋₈ 烷氧基羰基、C₁₋₈ 烷基磺酰基、C₁₋₈ 烷基氨基或 C₁₋₈ 烷基酰氧基中的基团所取代的六元杂环基、芳基、芳基 C₁₋₈ 烷基、芳基氧基、芳基 C₁₋₈ 烷基氧基、芳基氧基 C₁₋₈ 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C₁₋₈ 烷基、杂芳基氧基、杂芳基 C₁₋₈ 烷基氧基、杂芳基氧基 C₁₋₈ 烷基、杂芳基羰基、杂芳基磺酰基；或者 R₁R₂N-代表环上含有或不含有其他杂原子的六元杂环基。

在一些优选的实施方案中，X 代表卤代 C₁₋₆ 烷基；

A 代表未取代或取代的 C₁₋₆ 烷基、C₂₋₆ 烯基、C₂₋₆ 炔基、C₃₋₆ 环烷基、C₅₋₆ 环烯基、C₃₋₆ 环烷基 C₁₋₆ 烷基以及未取代或取代的 5~14 元芳基、杂芳基；

所述“取代的 C₁₋₆ 烷基、C₂₋₆ 烯基、C₂₋₆ 炔基、C₃₋₆ 环烷基、C₅₋₆ 环烯基、C₃₋₆ 环烷基 C₁₋₆ 烷基”是指被选自以下基团中的一种或多种所取代：氟，氯，溴，氰基，硝基，叠氮基，未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基、C₅₋₆ 环烯基、C₃₋₆ 环烷基 C₁₋₆ 烷基、C₂₋₆ 烯基、C₂₋₆ 炔基、C₁₋₆ 烷氧基、C₁₋₆ 烷基羰基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷基磺酰基、C₁₋₆ 烷基氨基或 C₁₋₆ 烷基酰氧基中的基团所取代的芳基、杂芳基，-(CH₂)_n-O-，-(CH₂)_n-S-，-(CH₂)_n-NR₃-，R-O-，R-O-(CH₂)_p-O-，R-O-(CH₂)_p-S-，R-S-，R-S-(CH₂)_p-O-，R-S-(CH₂)_p-S-，R-O-(C=O)-，R-S-(C=S)-，R-O-(C=S)-，R-S-(C=O)-，R-(C=O)-，R-(C=S)-，R-(C=O)-O-，R-(C=S)-S-，R-(C=O)-S-，R-(C=S)-O-，R-SO-，R-SO₂-，R₁R₂N-，R₁R₂N-O-，R₁R₂N-(C=O)-，R₁R₂N-SO₂-，R₁R₂PO₃-，R₁R₂R₃SiO-，R₁R₂R₃Si-(CH=CH)-，R₁R₂R₃Si-，R₁R₂C=N-(O)-，R₁R₂C=N-，R₁R₂C=N-NH-；

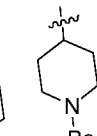
所述“取代的 5~14 元芳基、杂芳基”是指被选自以下基团中的一种或多种所取代：氟，氯，溴，氰基，硝基，叠氮基，含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₂₋₆ 烯基、C₂₋₆ 炔基、C₃₋₆ 环烷基、C₅₋₆ 环烯基、C₃₋₆ 环烷基 C₁₋₆ 烷基，未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基、C₅₋₆ 环烯基、C₃₋₆ 环烷基 C₁₋₆ 烷基、C₂₋₆ 烯基、C₂₋₆ 炔基、C₁₋₆ 烷氧基、C₁₋₆ 烷基羰基、

C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、杂芳基、杂芳基 C_{1-6} 烷基, $R-O-$, $R-O-(CH_2)_p-O-$, $R-O-(CH_2)_p-S-$, $R-S-$, $R-S-(CH_2)_p-O-$, $R-S-(CH_2)_p-S-$, $R-O-(C=O)-(O)_m-$, $R-S-(C=S)-(S)_m-$, $R-O-(C=O)-(S)_m-$, $R-O-(C=S)-(O)_m-$, $R-S-(C=O)-(O)_m-$, $R-O-(C=S)-(S)_m-$, $R-S-(C=O)-(S)_m-$, $R-S-(C=S)-(O)_m-$, $R-O-(C=O)-(CH_2)_q-$, $R-S-(C=S)-(CH_2)_q-$, $R-O-(C=S)-(CH_2)_q-$, $R-S-(C=O)-(CH_2)_q-$, $R-O-(CH_2)_n-(C=O)-$, $R-S-(CH_2)_n-(C=S)-$, $R-O-(CH_2)_n-(C=S)-$, $R-S-(CH_2)_n-(C=O)-$, $R-(C=O)-$, $R-(C=S)-$, $R-(C=O)-O-$, $R-(C=S)-S-$, $R-(C=O)-S-$, $R-(C=S)-O-$, $R-SO_2-$, $R-SO_2-$, R_1R_2N- , R_1R_2N-O- , $R_1R_2N-(C=O)-(CH_2)_p-$, $R_1R_2N-(C=O)-(O)_m-$, $R_1R_2N-(C=O)-(S)_m-$, $R_1R_2N-(C=O)-(NR_3)_m-$, $R_1R_2N-SO_2-(CH_2)_p-$, $R_1R_2N-SO_2-$, $R_1R_2N-(CH_2)_p-(C=O)-$, $R_1R_2N-(CH_2)_p-SO_2-$, $R_1R_2N-(CH_2)_p-O-$, $R_1R_2N-O-(CH_2)_p-$, $R_1R_2PO_3-$, $R_1R_2R_3SiO-$, $R_1R_2R_3Si-$, $R_1R_2R_3Si-CH=CH-$, $R_1R_2C=N-$, $R_1R_2C=N-O-$, $R_1R_2C=N-NH-$;

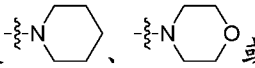
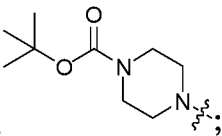
m 为 0 或 1, n 、 q 分别代表 0~4 之间的整数, p 代表 1~4 之间的整数; 其中, 上述基团中各 m 、 n 、 q 、 p 分别独立地取值, 且取值使各取代基之间互不相同;

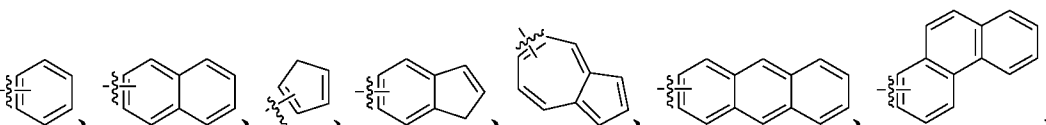
R 代表氢, 含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{5-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基, 以及未取代或被 1~3 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{5-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、杂芳基、杂芳基 C_{1-6} 烷基;

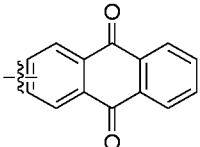
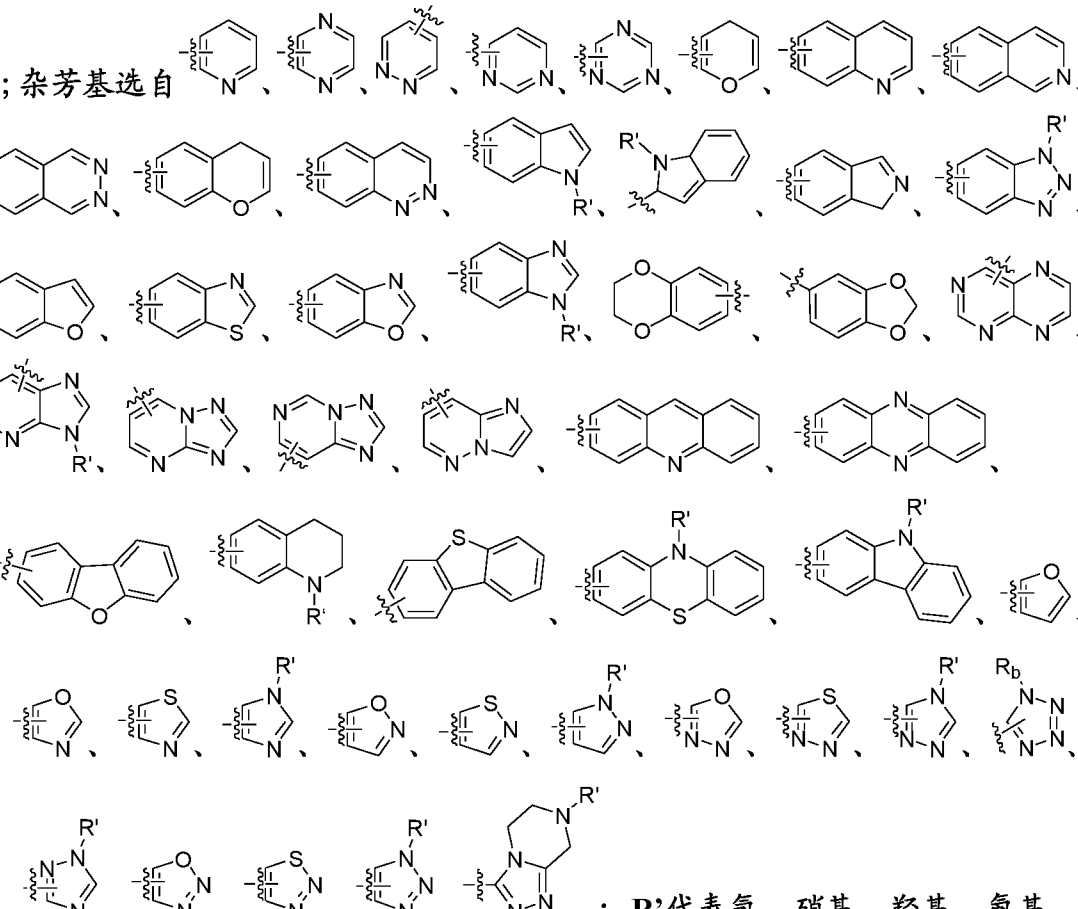
R_1 、 R_2 、 R_3 分别独立地代表氢, 硝基, 羟基, 氨基, 含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{5-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{1-6} 烷氧基、 C_{2-6} 烯基氧基、 C_{2-6} 炔基氧基、 C_{3-6} 环烷基氧基、 C_{1-6} 烷氧基 C_{1-6} 烷基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷硫基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基磺酰基 C_{1-6} 烷基、 C_{1-6} 烷基羰基、 C_{1-6} 烷基羰基 C_{1-6} 烷基、 C_{1-6} 烷基酰氧基、 C_{1-6} 烷基氨基、 C_{1-6} 烷基氨基羰基、 C_{1-6} 烷氧基氨基羰基、 C_{1-6} 烷氧基羰基 C_{1-6} 烷基、 C_{1-6} 烷氨基羰基 C_{1-6} 烷基、三 C_{1-6} 烷基甲硅烷基、二 C_{1-6} 烷基膦酰基, 以及未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{5-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6}

烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的 、、、芳基、芳基 C_{1-6} 烷基、芳

基氧基、芳基 C₁₋₆ 烷基氧基、芳基氧基 C₁₋₆ 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C₁₋₆ 烷基、杂芳基氧基、杂芳基 C₁₋₆ 烷基氧基、杂芳基氧基 C₁₋₆ 烷基、杂芳基羰基、杂芳基

磺酰基；或者 R₁R₂N-代表  或 ;

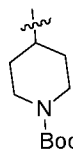
所述芳基为 ,

 ; 杂芳基选自 ,

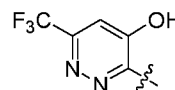
含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₂₋₆ 烯基、C₂₋₆ 炔基、C₃₋₆ 环烷基、C₅₋₆ 环烯基、C₃₋₆ 环烷基 C₁₋₆ 烷基、C₁₋₆ 烷氧基、C₂₋₆ 烯基氧基、C₂₋₆ 炔基氧基、C₃₋₆ 环烷基氧基、C₁₋₆ 烷氧基 C₁₋₆ 烷基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷硫基羰基、C₁₋₆ 烷基磺酰基、C₁₋₆ 烷基磺酰基 C₁₋₆ 烷基、C₁₋₆ 烷基羰基、C₁₋₆ 烷基羰基 C₁₋₆ 烷基、C₁₋₆ 烷基酰氧基、C₁₋₆ 烷基氨基、C₁₋₆ 烷基氨基羰基、C₁₋₆ 烷氧基氨基羰基、C₁₋₆ 烷氧基羰基 C₁₋₆ 烷基、C₁₋₆ 烷氨基羰基 C₁₋₆ 烷基、三 C₁₋₆ 烷基甲硅烷基、二 C₁₋₆ 烷基膦酰基，以及未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基、C₅₋₆

环烯基、C₃₋₆ 环烷基 C₁₋₆ 烷基、C₂₋₆ 烯基、C₂₋₆ 炔基、C₁₋₆ 烷氧基、C₁₋₆ 烷基羰基、C₁₋₆ 烷氧

基羰基、C₁₋₆ 烷基磺酰基、C₁₋₆ 烷基氨基或 C₁₋₆ 烷基酰氧基中的基团所取代的 、、



Boc、芳基、芳基 C₁₋₆ 烷基、芳基氧基、芳基 C₁₋₆ 烷基氧基、芳基氧基 C₁₋₆ 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C₁₋₆ 烷基、杂芳基氧基、杂芳基 C₁₋₆ 烷基氧基、杂芳基氧基 C₁₋₆ 烷基、杂芳基羰基、杂芳基磺酰基。

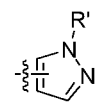
其中， 可与上述芳基、杂芳基环上的任意可连接位置（如 C）相连，当 R' 为 H 时，也可与 N 相连。

在更优选的实施方案中，X 代表 CH₂F、CHF₂、CF₃、CF₂CF₃；

A 代表 ，，未取代或取代的甲基、乙基、乙烯基、丙烯基、、、



所述“取代的甲基、乙基、乙烯基、丙烯基、、、、”是指被选自以下基团的中的一种或多种所取代：氟、氯、溴、氰基、R-O-，R-O-(C=O)-，R-(C=O)-，R-(C=O)-O-，R-SO₂-，R₁R₂N-，R₁R₂N-(C=O)-，R₁R₂N-SO₂-，R₁R₂PO₃-，R₁R₂R₃SiO-，R₁R₂R₃Si-(CH=CH)-，R₁R₂R₃Si-，R₁R₂C=N-(O)-，R₁R₂C=N-，R₁R₂C=N-NH-；

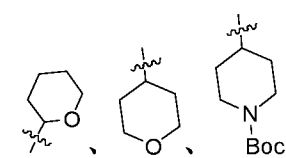
所述“取代的 、、”是指被选自以下基团的中的一种或多种所取代：氟，氯，溴，氰基，硝基，叠氮基，含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基，未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、氨基以及含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基、C₁₋₆ 烷氧基、C₁₋₆ 烷基羰基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷基磺酰基、C₁₋₆ 烷基氨基或 C₁₋₆ 烷基酰氧基中的基团所取代的苯基、苄基，R-O-，R-O-(C=O)-，R-(C=O)-，R-(C=O)-O-，R-SO₂-，R₁R₂N-，R₁R₂N-(C=O)-，R₁R₂N-SO₂-，R₁R₂PO₃-，R₁R₂R₃SiO-，R₁R₂R₃Si-，R₁R₂R₃Si-CH=CH-，R₁R₂C=N-，R₁R₂C=N-O-，R₁R₂C=N-NH-；

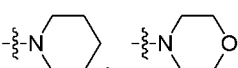
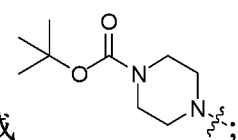
m 为 0 或 1，n、q 分别代表 0、1 或 2，p 代表 1 或 2；

R 代表氢，含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基，以及未取代或被 1~3 个

独立选自氟、氯、溴、氰基、硝基、氨基以及含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基、C₁₋₆ 烷氧基、C₁₋₆ 烷基羰基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷基磺酰基、C₁₋₆ 烷基氨基或 C₁₋₆ 烷基酰氧基中的基团所取代的苯基、苄基；

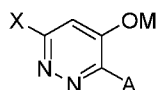
R₁、R₂、R₃ 分别独立地代表氢，含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基、C₁₋₆ 烷氧基、C₁₋₆ 烷氧基 C₁₋₆ 烷基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷基磺酰基、C₁₋₆ 烷基磺酰基 C₁₋₆ 烷基、C₁₋₆ 烷基羰基、C₁₋₆ 烷基羰基 C₁₋₆ 烷基、C₁₋₆ 烷基酰氧基、C₁₋₆ 烷基氨基、C₁₋₆ 烷基氨基羰基、C₁₋₆ 烷氧基氨基羰基、C₁₋₆ 烷氧基羰基 C₁₋₆ 烷基、C₁₋₆ 烷基氨基羰基 C₁₋₆ 烷基，以及未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、氨基以及含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₃₋₆ 环烷基、C₁₋₆ 烷氧基、C₁₋₆ 烷基羰基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷基磺酰基、

C₁₋₆ 烷基氨基或 C₁₋₆ 烷基酰氧基中的基团所取代的苯基、苄基、; 或者

R₁R₂N-代表  或 ;

R' 代表氢，C₁₋₆ 烷基。

另外，当通式 I 中 X 代表 -CH₂Cl 时，A 不为 -CH₂Cl。



本发明所述衍生物 I-1 是指农业上可接受的盐或通式 I 中吡嗪环 4 位上的羟基衍生物，包括其酯、肟、羟胺和醚类等衍生物。

所述盐衍生物为通常的农药中使用的盐，例如，可以制成碱金属盐、碱土金属盐或胺盐，或者，当分子中存在碱性部分时，可以制成例如硫酸盐、盐酸盐、硝酸盐、磷酸盐等的盐。当这些盐只要是作为农业、园艺用的除草剂使用时，也被包含在本发明中。本发明中，“碱金属盐”例如可以为，钠盐、钾盐或锂盐，优选为钠盐或钾盐。本发明中，“碱土金属盐”例如可以为，钙盐或镁盐，优选为钙盐。本发明中，“胺盐”例如可以为，烷基仲胺盐、烷基叔胺盐或烷基季胺盐；烷基伯胺盐、烷基仲胺盐、烷基叔胺盐或烷基季胺盐；烷基醇伯胺盐、烷基醇仲胺盐、烷基醇叔胺盐或烷基醇季胺盐；或烷基醇伯胺盐、烷基醇仲胺盐、烷基醇叔胺盐或烷基醇季胺盐；或烷基醇伯胺盐、烷基醇仲胺盐、烷基醇叔胺盐或烷基醇季胺盐，优选地，其中所述烷基、烷基醇和烷基氧基团独立地为饱和的以及独立地含有 C1-C4 个碳原子，更优选为单乙醇胺盐、二甲基乙醇胺盐、三乙醇胺盐、二甲胺盐、三乙胺盐、异丙胺盐、胆碱盐或二甘醇胺盐。

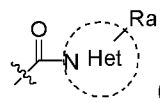
本发明化合物的溶剂合物也包含在本发明中。

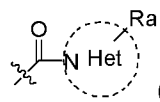
本发明化合物中也包含具有不对称碳原子的化合物,在该情况下,本发明中也包含一种光学活性体和多种光学活性体按任意比例的混合物。

所述酯衍生物是指在哒嗪环4位上的羟基的氧原子上键合了酰基而形成的化合物,即通式 I-1 中所述 M 基团为酰基,包括羰基、硫羰基、亚砷基、磺酰基、磷酰基、硫代磷酰基等,其余基团如前述在通式 I 中所定义。

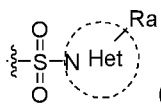
例如通式 I-1 中 M 基团可以为,可被取代基取代的甲(硫)酰基或 C1~C18 烷(硫)羰基[该取代基为从卤素原子、氨基、C3~C8 环烷基、C1~C8 烷氧基、C1~C8 烷硫基、C1~C8 烷氧基羰基、C1~C8 烷羰基氧基、C1~C8 烷羰基、可被取代基取代的 C2~C8 烯基氧基羰基{该取代基为从 C3~C8 环烷基、氰基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}、羟基甲基氧磷基、可被取代基取代的 C3~C8 环烯基氧基羰基{该取代基为从氧代以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~2 个取代基}、可被取代基取代的 5 或 6 元杂环氧基羰基{该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子。该取代基为从卤素原子、C1~C8 烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、2,3-二氢-1H-茚氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}、可被取代基取代的苯基、苯氧基、苄氧基、苯硫基和苄硫基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 烷氧基、C1~C8 卤代烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、以及 C1~C8 烷硫基中选出的 1 个或多个相同或不同的取代基]、C3~C8 环烷(硫)羰基、金刚烷基(硫)羰基、可被取代基取代的 C2~C8 烯基(硫)羰基{该取代基为从卤素原子、C1~C8 烷氧基、以及可被取代基取代的苯基、苯硫基或苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 烷氧基、C1~C8 卤代烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)中选出的 1 个或多个相同或不同的取代基}、C2~C8 炔基(硫)羰基、可被取代基取代的苯甲(硫)酰基或萘甲(硫)酰基[该取代基为从卤素原子、可被取代基取代的 C1~C8 烷基(该取代基为从卤素原子和苯基中选出的 1 个或多个相同或不同的取代基)、氰基、羟基、C1~C8 烷羰基、C1~C8 烷氧基羰基、C1~C8 烷羰基氧基、C1~C8 烷羰基氨基、可被取代基取代的氨基(该

取代基为从 C1~C8 烷基、C1~C8 烷氧基、C1~C8 烷羰基、卤代 C1~C8 烷基和苯基中选出的相同或不同的 1~3 个取代基)、可被取代基取代的 C2~C8 烯基氧基羰基{该取代基为从 C3~C8 环烷基、氰基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}、可被取代基取代的 C3~C8 环烯基氧基羰基{该取代基为从氧代以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~2 个取代基}、苯基、硝基、可被取代基取代的 C1~C8 烷氧基(该取代基为从卤素原子以及苯基中选出的相同或不同的 1~3 个取代基)、苯氧基、可被取代基取代的 5 或 6 元杂环氧基羰基{该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子。该取代基为从卤素原子、C1~C8 烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、2, 3-二氢-1H-茚氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}以及可被取代基取代的 5 或 6 元杂环氧基磺酰基{该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子。该取代基为从卤素原子、C1~C8 烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、2, 3-二氢-1H-茚氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}中选出的相同或不同的 1~3 个取代基]、被卤素取代的巯基甲酰基、可被取代基取代的 3~8 元杂环(硫)羰基{该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子,也可以形成在杂环内的任意的碳原子上含有 1~2 个氧原子的 5~6 元螺环。该取代基为从卤素原子、可被取代基取代的 C1~C8 烷基(该取代基为从卤素原子以及苯基中选出的 1 个或多个相同或不同的取代基)、C1~C8 烷羰基、C1~C8 烷氧基羰基、可被取代基取代的苯基(该取代基为相同或不同的 1~3 个卤素原子)、硝基、羟基、C1~C8 烷氧基、苯氧基、C1~C8 烷硫基、C2~C8 烯基硫基以及苯硫基中选出的相同或不同的 1~3 个取代基}、可被取代基取代的 5~14 元的缩合二环或三环式杂环(硫)羰基(该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子或氧原子。该取代基为从卤素原子以及 C1~C8 烷基中选出

的相同或不同的 1~3 个取代基)、5 或 6 元杂环(硫)羰基(硫)羰基(该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子)、可被取代基取代的 C1~C18 烷氧基(硫)羰基或 C1~C18 烷硫基(硫)羰基(该取代基为从卤素原子、C1~C8 烷氧基以及苯基中选出的 1 个或多个相同或不同的取代基)、C2~C8 烯基氧基(硫)羰基、C2~C8 烯基硫基(硫)羰基、C2~C8 链炔基氧基(硫)羰基、C2~C8 链炔基硫基(硫)羰基、C3~C8 环烷基氧基(硫)羰基、C3~C8 环烷基硫基(硫)羰基、可被取代基取代的苯氧基(硫)羰基、苯硫基(硫)羰基、苯 C1~C8 烷基氧基(硫)羰基或苯 C1~C8 烷基硫基(硫)羰基(该取代基为从卤素原子、C1~C8 烷基、氰基、C1~C8 烷羰基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷氧基中选出的相同或不同的 1~3 个取代基)、缩合多环式炔氧基(硫)羰基、缩合多环式炔硫基(硫)羰基、可被取代基取代的 5 或 6 元杂环氧基(硫)羰基或 5 或 6 元杂环硫基(硫)羰基{该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子。该取代基为从卤素原子、C1~C8 烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、2, 3-二氢-1H-茚氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}、可被取代基取代的氨基甲(硫)酰基{该取代基为从可被取代基取代的 C1~C8 烷基(该取代基为从卤素原子、C1~C8 烷氧基羰基、氰基、苯基以及 C1~C8 烷氧基中选出的 1 个或多个相同或不同的取代基)、C2~C8 烯基、苯基、C1~C8 烷羰基、C1~C8 烷氧基羰基以及 C1~C8 烷氧基中选出的相同或不同的 1~3 个取代基}、 (Het 为 5-6 元杂环,该环上除含有 C 和 1-位上的 N 原子外,还含有 0-3 个以下原子或基团作为环的组成部分: O、NR_b、C=O, R_a 和 R_b 独立地代表氢、C1~C8 烷基)、可被取代基取代的 C1~C8 烷基亚砷基、C1~C8 烷基磺酰基、C2~C8 烯基磺酰基或 C3~C8 环烷基磺酰基(该取代基为从卤素原子、C1~C8 烷基磺酰基中选出的 1 个或多个相同或不同的取代基)、可被取代基取代的苯基磺酰基、苄基磺酰基或萘基磺酰基[该取代基为从卤素原子、C1~C8 烷基、卤代 C1~C8 烷基、氰基、C1~C8 烷羰基、C1~C8 烷氧基羰基、硝基、C1~C8 烷氧基、卤代 C1~C8 烷氧基、C1~C8 烷基磺酰基、可被取代基取代的氨基酰基(该取代基为 C1~C8 烷基)、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、可被取代基取代的 C2~C8 烯基氧基磺酰基{该取代基为从 C3~C8 环烷基、氰基以及可被取代基取代的苯甲酰基(该取

及 C1~C8 烷氧基中选出的相同或不同的 1~3 个取代基}、 (Het 为 5-6 元杂环,该环上除含有 C 和 1-位上的 N 原子外,还含有 0-3 个以下原子或基团作为环的组成部分: O、NR_b、C=O, R_a 和 R_b 独立地代表氢、C1~C8 烷基)、可被取代基取代的 C1~C8 烷基亚砷基、C1~C8 烷基磺酰基、C2~C8 烯基磺酰基或 C3~C8 环烷基磺酰基(该取代基为从卤素原子、C1~C8 烷基磺酰基中选出的 1 个或多个相同或不同的取代基)、可被取代基取代的苯基磺酰基、苄基磺酰基或萘基磺酰基[该取代基为从卤素原子、C1~C8 烷基、卤代 C1~C8 烷基、氰基、C1~C8 烷羰基、C1~C8 烷氧基羰基、硝基、C1~C8 烷氧基、卤代 C1~C8 烷氧基、C1~C8 烷基磺酰基、可被取代基取代的氨基酰基(该取代基为 C1~C8 烷基)、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、可被取代基取代的 C2~C8 烯基氧基磺酰基{该取代基为从 C3~C8 环烷基、氰基以及可被取代基取代的苯甲酰基(该取

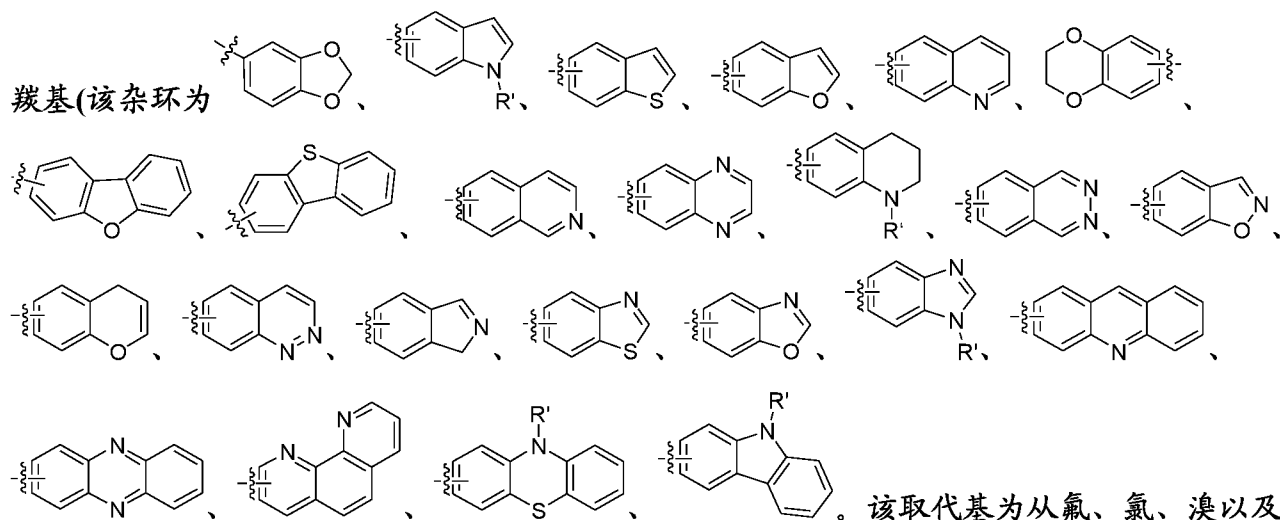
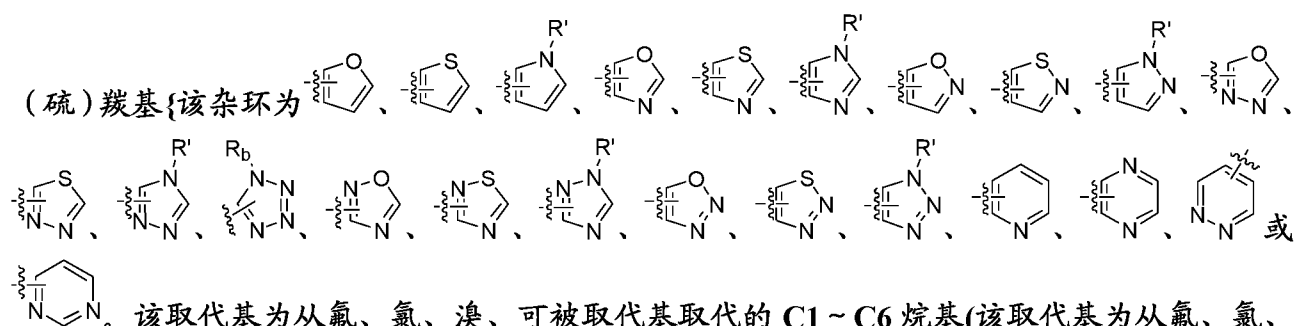
代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C1~C8烷氧基羰基、硝基以及C1~C8烷基磺酰基中选出的相同或不同的1~3个取代基)中选出的相同或不同的1~3个取代基}、可被取代基取代的C3~C8环烯基氧基磺酰基{该取代基为从氧代以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C1~C8烷氧基羰基、硝基以及C1~C8烷基磺酰基中选出的相同或不同的1~3个取代基)中选出的相同或不同的1~2个取代基}以及可被取代基取代的5或6元杂环氧基磺酰基{该杂环的环中含有1个氮原子、氧原子或硫原子,还可以再含有1~2个氮原子。该取代基为从卤素原子、C1~C8烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C3~C8环烷基以及C1~C8烷氧基羰基中选出的相同或不同的1~3个取代基)、2,3-二氢-1H-茛氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C1~C8烷氧基羰基、硝基以及C1~C8烷基磺酰基中选出的相同或不同的1~3个取代基)中选出的相同或不同的1~3个取代基}、可被取代基取代的5-10元芳杂环基磺酰基或5-10元杂环氧基磺酰基{该杂环的环中含有1个氮原子、氧原子或硫原子,还可以再含有1~2个氮原子。该取代基为从卤素原子、C1~C8烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C3~C8环烷基以及C1~C8烷氧基羰基中选出的相同或不同的1~3个取代基)、2,3-二氢-1H-茛氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C1~C8烷氧基羰基、硝基以及C1~C8烷基磺酰基中选出的相同或不同的1~3个取代基)中选出的相同或不同的1~3个取代基}、C1~C8烷氧基磺酰基、可被取代基取代的C1~C8烷基氨基磺酰基(该取代基为从卤素原子中选出的1个或多个相同或不同的取代基)、



(Het为5-6元杂环,该环上除含有C和1-位上的N原子外,还含有0-3个以下原子或基团作为环的组成部分:O、NR_b、C=O, R_a和R_b独立地代表氢、C1~C8烷基)、二(C1~C8烷基)磷酰基、二(C1~C8烷基)硫代磷酰基所键合的化合物。

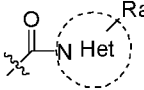
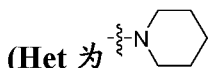
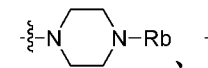
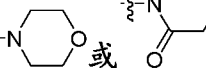
在一些优选的实施方案中,所述M基团可以为,可被取代基取代的C1~C10烷(硫)羰基{该取代基为从氟、氯、溴、C3~C6环烷基、C1~C6烷氧基、C1~C6烷硫基、C1~C6烷氧基羰基、C1~C6烷羰基、C1~C6烷羰基氧基、可被取代基取代的苯基、苯硫基、苯氧基或苄氧基(该取代基为从氟、氯、溴、C1~C6烷基、C1~C6烷氧基中选出的相同或不同的1~3个取代基)中选出的1个或多个相同或不同的取代基}、C3~C6环烷(硫)羰基、可被取代基取代的C2~C6烯基(硫)羰基{该取代基为从氟、氯、溴、C1~C6烷氧基、可被取代基取代的苯基、苯硫基或苯氧基(该取代基为从氟、氯、溴、C1~C6烷基、C1~C6

烷氧基中选出的相同或不同的 1~3 个取代基) 中选出的 1 个或多个相同或不同的取代基}、可被取代基取代的苯甲(硫)酰基或萘甲(硫)酰基{该取代基为从氟、氯、溴、可被取代基取代的 C1~C6 烷基或 C1~C6 烷氧基(该取代基为从氟、氯、溴和苯基中选出的相同或不同的 1~3 个取代基)、氰基、羟基、C1~C6 烷羰基、C1~C6 烷氧基羰基、C1~C6 烷羰基氧基、C1~C6 烷羰基氨基、可被取代基取代的氨基(该取代基为从 C1~C6 烷基、C1~C6 烷氧基、C1~C6 烷羰基、卤代 C1~C6 烷基和苯基中选出的相同或不同的 1~3 个取代基)、苯基、硝基、苯氧基中选出的相同或不同的 1~3 个取代基}、可被取代基取代的 3~8 元杂环



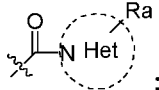
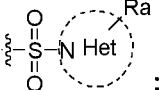
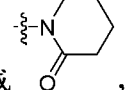
C1~C6 烷基中选出的相同或不同的 1~3 个取代基)、可被取代基取代的 C1~C10 烷氧基(硫)羰基或 C1~C10 烷硫基(硫)羰基(该取代基为从氟、氯、溴、C1~C6 烷氧基以及苯基中选出的 1 个或多个相同或不同的取代基)、C3~C6 环烷基氧基(硫)羰基、C3~C6 环烷基硫基(硫)羰基、可被取代基取代的苯氧基(硫)羰基、苯硫基(硫)羰基、苯 C1~C6 烷基氧基(硫)羰基或苯 C1~C6 烷基硫基(硫)羰基(该取代基为从氟、氯、溴、C1~C6 烷基、氰基、C1~C6 烷羰基、C1~C6 烷氧基羰基、硝基以及 C1~C6 烷氧基中选出的相同或不同

的 1~3 个取代基)、可被取代基取代的氨基甲(硫)酰基{该取代基为从可被取代基取代的 C1~C6 烷基(该取代基为从氟、氯、溴中选出的 1 个或多个相同或不同的取代基)、C2~C6 烯基、苯基、C1~C6 烷羰基、C1~C6 烷氧基羰基以及 C1~C6 烷氧基中选出的相同或不同的 1~3 个取代基}、

 (Het 为 、、 或 , R_a 和 R_b 独立地代表氢、C1~C6 烷基)、可被取代基取代的 C1~C6 烷基亚砷基、C1~C6 烷基磺酰基、C2~C6 烯基磺酰基或 C3~C6 环烷基磺酰基(该取代基为从氟、氯、溴、C1~C6 烷基磺酰基中选出的 1 个或多个相同或不同的取代基)、可被取代基取代的苯基磺酰基、苄基磺酰基或萘基磺酰基{该取代基为从氟、氯、溴、C1~C6 烷基、卤代 C1~C6 烷基、氰基、C1~C6 烷羰基、C1~C6 烷氧基羰基、硝基、C1~C6 烷氧基、卤代 C1~C6 烷氧基、C1~C6 烷基磺酰基、可被取代基取代的氨基酰基(该取代基为 C1~C6 烷基)、可被取代基取代的苯氧基(该取代基为从氟、氯、溴、C1~C6 烷基、C1~C8 卤代烷基、C3~C6 环烷基以及 C1~C6 烷氧基羰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}、可

被取代基取代的 5-10 元芳杂环基磺酰基{该杂环为 、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、、

基；未取代或被苯基取代的 C_{1-18} 烷氧基（硫）羰基或 C_{1-18} 烷硫基（硫）羰基； C_{3-8} 环烷基硫基（硫）羰基；苯 C_{1-8} 烷基硫基（硫）羰基；未取代或被选自下述的取代基取代的 C_{2-8} 烯基（硫）羰基： C_{1-8} 烷氧基、苯基和卤代苯基；未取代或被选自下述的取代基取代的苯甲（硫）酰基：卤素、羟基、 C_{1-8} 烷基、 C_{1-8} 烷氧基、氰基、卤代 C_{1-8} 烷氧基、 C_{1-8} 烷羰基氧基、 C_{1-8} 烷羰基胺基、氨基和 1 个或 2 个 C_{1-8} 烷基取代的氨基；卤代巯基甲酰基；未取代或被选自下述的取代基取代的 3~8 元杂环（硫）羰基： C_{1-8} 烷基、卤素和 C_{1-8} 烷硫基；5~14 元的缩合二环或三环式杂环（硫）羰基；未取代或被选自下述的取代基取代的氨基甲（硫）酰基： C_{1-8} 烷基和 C_{1-8} 烷氧基；未取代或被卤素、 C_{1-8} 烷基磺酰基取代的 C_{1-8} 烷基亚砷基、 C_{1-8} 烷基磺酰基或 C_{3-8} 环烷基磺酰基；未取代或被选自下述的取代基取代的苯基磺酰基、苄基磺酰基或萘基磺酰基：卤素、硝基、 C_{1-8} 烷基、卤代 C_{1-8} 烷基、卤代 C_{1-8} 烷氧基、 C_{1-8} 烷羰基、 C_{1-8} 烷基磺酰基、氨基酰基、苯氧基和卤代苯氧基；未取代或被选自下述的取代基取代的 5-10 元芳杂环基磺酰基： C_{1-8} 烷基和苯氧基；未取代或被卤素取代的 C_{1-8} 烷基氨基磺酰基；二(C_{1-8}

烷基)磷酸基：；；其中，Het 选自 、-Rb、或 ，Ra 和 Rb 独立地代表氢、 C_{1-6} 烷基。

所述衍生物是指在通式 I 哒嗪环 4 位上的羟基的氧原子上衍生形成的含有胍基的化合物。在一些优选的实施方案中，所述胍基选自 $R_{22}-C(R_{11})=N-O$ ，其中， R_{11} 、 R_{22} 分别独立地代表氢、可被取代基取代的 $C_1 \sim C_{18}$ 烷基或 $C_2 \sim C_{18}$ 烯基(该取代基为从卤素原子、 $C_1 \sim C_8$ 烷氧基、 $C_1 \sim C_8$ 烷硫基、 $C_1 \sim C_8$ 烷基氨基中选出的 1 个或多个相同或不同的取代基)、可被取代基取代的苯基、苯基酰基或 5-6 元芳杂环基(该取代基为从卤素原子、 $C_1 \sim C_8$ 烷基、 $C_2 \sim C_8$ 烯基、 $C_2 \sim C_8$ 炔基、 $C_3 \sim C_8$ 环烷基、 $C_1 \sim C_8$ 卤代烷基、 $C_1 \sim C_8$ 烷羰基、 $C_1 \sim C_8$ 烷氧基、 $C_1 \sim C_8$ 烷氧基羰基、 $C_1 \sim C_8$ 烷基氨基、羟基、羧基、巯基、氨基、氰基、硝基以及 $C_1 \sim C_8$ 烷基磺酰基中选出的相同或不同的 1~3 个取代基，芳杂环基含至少一个氧、硫、氮等杂原子)，或者 R_{11} 、 R_{22} 形成 5、6 元饱和碳环或 5、6 元杂环(含至少一个氧、硫、氮等杂原子)。

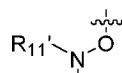
在一些优选的实施方案中， R_{11} 、 R_{22} 分别独立地代表氢、可被取代基取代的 $C_1 \sim C_{10}$ 烷基或 $C_2 \sim C_{10}$ 烯基(该取代基为从氟、氯、溴、 $C_1 \sim C_6$ 烷氧基、 $C_1 \sim C_6$ 烷硫基、 $C_1 \sim C_6$ 烷基氨基中选出的 1 个或多个相同或不同的取代基)、可被取代基取代的苯基、苯基酰基或 5-6

元芳杂环基(该芳杂环基为 、、、、、、、、、、、、或 。该取代基为从氟、氯、溴、 $C_1 \sim C_6$ 烷基、 $C_3 \sim C_6$ 环烷基、

C1~C6 卤代烷基、C1~C6 烷羰基、C1~C6 烷氧基、C1~C6 烷氧基羰基、C1~C6 烷基氨基、羟基、羧基、巯基、氨基、氰基、硝基以及 C1~C6 烷基磺酰基中选出的相同或不同的 1~3 个取代基), 或者 R₁₁、R₂₂ 形成 5、6 元饱和碳环或 5、6 元杂环(含至少一个氧、硫、氮等杂原子)。

在一些优选的实施方案中, R₁₁ 和 R₂₂ 各自独立地选自氢、未取代或被选自下述的取代基取代的 C₁₋₁₈ 烷基: C₁₋₈ 烷氧基和 C₁₋₈ 烷硫基, 和未取代或被卤代 C₁₋₈ 烷基取代的苯基或 5-6 元芳杂环基, 或者 R₁₁ 和 R₁₂ 形成 5-6 元饱和碳环或杂环。

所述羟胺衍生物是指在通式 I 吡嗪环 4 位上的羟基的氧原子上键合而形成的含有羟胺基



的化合物。在一些优选的实施方案中, 所述羟胺基选自 $\begin{array}{c} \text{R}_{11}' \\ \text{N} \\ \text{O} \\ \text{R}_{22}' \end{array}$, 其中, R₁₁'、R₂₂' 分别独立地代表氢、可被取代基取代的 C1~C18 烷基或 C2~C18 烯基(该取代基为从卤素原子、C1~C8 烷氧基、C1~C8 烷硫基、C1~C8 烷基氨基中选出的 1 个或多个相同或不同的取代基)、可被取代基取代的苯基(该取代基为从卤素原子、C1~C8 烷基、C2~C8 烯基、C2~C8 炔基、C3~C8 环烷基、C1~C8 卤代烷基、C1~C8 烷羰基、C1~C8 烷氧基、C1~C8 烷氧基羰基、C1~C8 烷基氨基、羟基、羧基、巯基、氨基、氰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)、C1~C18 烷氧羰基、可被取代基取代的苯甲酰基[该取代基为从卤素原子、可被取代基取代的 C1~C8 烷基、C2~C8 烯基、C2~C8 炔基或 C3~C8 环烷基(该取代基为从卤素原子和苯基中选出的相同或不同的 1~3 个取代基)、氰基、C1~C8 烷羰基、C1~C8 烷氧基羰基、C1~C8 烷基磺酰基、可被取代基取代的 C2~C8 烯基氧基羰基{该取代基为从 C3~C8 环烷基、氰基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}、可被取代基取代的 C3~C8 环烯基氧基羰基{该取代基为从氧代以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~2 个取代基}、羟基、羧基、巯基、氨基、苯基、硝基、可被取代基取代的 C1~C8 烷氧基、C1~C8 烷基氨基或 C1~C8 烷硫基(该取代基为从卤素原子以及苯基中选出的相同或不同的 1~3 个取代基)、苯氧基、可被取代基取代的 5 或 6 元杂环氧基羰基{该杂环的环中含有 1 个氮原子、氧原子或硫原子, 还可以再含有 1~2 个氮原子。该取代基为从卤素原子、C1~C8 烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、2, 3-二氢-1H-茚氧基

以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C1~C8烷氧基羰基、硝基以及C1~C8烷基磺酰基中选出的相同或不同的1~3个取代基)中选出的相同或不同的1~3个取代基}以及可被取代基取代的5或6元杂环氧基磺酰基{该杂环的环中含有1个氮原子、氧原子或硫原子,还可以再含有1~2个氮原子。该取代基为从卤素原子、C1~C8烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C3~C8环烷基以及C1~C8烷氧基羰基中选出的相同或不同的1~3个取代基)、2,3-二氢-1H-茛氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C1~C8烷氧基羰基、硝基以及C1~C8烷基磺酰基中选出的相同或不同的1~3个取代基)中选出的相同或不同的1~3个取代基}中选出的相同或不同的1~3个取代基]。

在一些优选的实施方案中, R_{11}' 、 R_{22}' 分别独立地代表氢、可被取代基取代的C1~C10烷基或C2~C10烯基(该取代基为从氟、氯、溴中选出的1个或多个相同或不同的取代基)、C1~C10烷氧羰基、可被取代基取代的苯基或苯甲酰基(该取代基为从氟、氯、溴、C1~C6烷基、C2~C6烯基、C2~C6炔基、C3~C6环烷基、C1~C6卤代烷基、C1~C6烷羰基、C1~C6烷氧基、C1~C6烷氧基羰基、C1~C6烷基氨基、羟基、羧基、巯基、氨基、氰基、硝基以及C1~C6烷基磺酰基中选出的相同或不同的1~3个取代基)。

在一些优选的实施方案中, R_{11}' 和 R_{22}' 各自独立地代表C₁₋₁₈烷基。

所述醚衍生物是指在哒嗪环4位上的羟基的氧原子上键合如下基团而形成的化合物: 氰基、可被取代基取代的C1~C18烷基或C2~C18烯基(该取代基为从卤素原子、C1~C8烷氧基、C1~C8烷硫基、C1~C8烷基氨基、二C1~C8烷基氨基、C1~C8烷氧羰基、C1~C8烷氧羰基氧基、C3~C8环烷氧基、C3~C8环烷硫基、C3~C8环烷基氨基、二C3~C8环烷基氨基、C3~C8环烷氧羰基、C3~C8环烷氧羰基氧基中选出的1个或多个相同或不同的取代基)、可被取代基取代的苯基、苄基或苯甲酰基C1~C8烷基[该取代基为从卤素原子、可被取代基取代的C1~C8烷基、C2~C8烯基、C2~C8炔基或C3~C8环烷基(该取代基为从卤素原子和苯基中选出的相同或不同的1~3个取代基)、氰基、C1~C8烷羰基、C1~C8烷氧基羰基、C1~C8烷基磺酰基、可被取代基取代的C2~C8烯基氧基羰基{该取代基为从C3~C8环烷基、氰基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C1~C8烷氧基羰基、硝基以及C1~C8烷基磺酰基中选出的相同或不同的1~3个取代基)中选出的相同或不同的1~3个取代基}、可被取代基取代的C3~C8环烯基氧基羰基{该取代基为从氧代以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8烷基、C1~C8卤代烷基、C1~C8烷氧基羰基、硝基以及C1~C8烷基磺酰基

中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~2 个取代基}、羟基、羧基、巯基、氨基、苯基、硝基、可被取代基取代的 C1~C8 烷氧基、C1~C8 烷基氨基或 C1~C8 烷硫基(该取代基为从卤素原子以及苯基中选出的相同或不同的 1~3 个取代基)、苯氧基、可被取代基取代的 5 或 6 元杂环氧基羰基{该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子。该取代基为从卤素原子、C1~C8 烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、2, 3-二氢-1H-茚氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}以及可被取代基取代的 5 或 6 元杂环氧基磺酰基{该杂环的环中含有 1 个氮原子、氧原子或硫原子,还可以再含有 1~2 个氮原子。该取代基为从卤素原子、C1~C8 烷基、可被取代基取代的苯氧基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C3~C8 环烷基以及 C1~C8 烷氧基羰基中选出的相同或不同的 1~3 个取代基)、2, 3-二氢-1H-茚氧基以及可被取代基取代的苯甲酰基(该取代基为从卤素原子、C1~C8 烷基、C1~C8 卤代烷基、C1~C8 烷氧基羰基、硝基以及 C1~C8 烷基磺酰基中选出的相同或不同的 1~3 个取代基)中选出的相同或不同的 1~3 个取代基}中选出的相同或不同的 1~3 个取代基]。其中,当通式 I-1 中 X 代表- CF_3 且 A 代表苯基时,上述基团 M 不为甲基和烯丙基;当通式 I-1 中 X 代表- CHF_2 且 A 代表- CHF_2 时,上述基团 M 不为 .

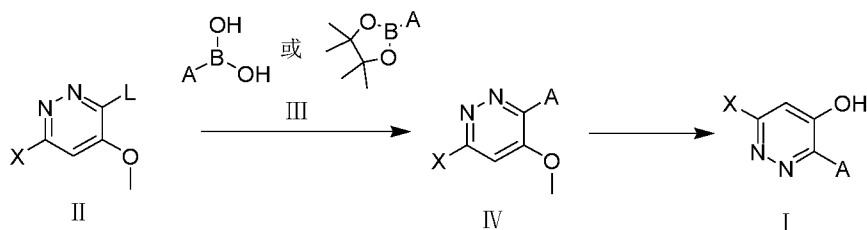
在一些优选的实施方案中,所述醚衍生物是指在吡嗪环 4 位上的羟基的氧原子上键合如下基团而形成的化合物: C8~C18 烷基或 C8~C18 烯基、被取代的 C1~C10 烷基或 C2~C10 烯基{该取代基为从氟、氯、溴、C1~C6 烷氧基、C1~C6 烷硫基、C1~C6 烷基氨基、C1~C6 烷氧羰基、C1~C6 烷氧羰基氧基、C3~C6 环烷氧羰基氧基中选出的 1 个或多个相同或不同的取代基}、可被取代基取代的苯基、苄基或苯甲酰基 C1~C6 烷基(该取代基为从氟、氯、溴、C1~C6 烷基、C2~C6 烯基、C2~C6 炔基、C3~C6 环烷基、C1~C6 卤代烷基、C1~C6 烷羰基、C1~C6 烷氧基、C1~C6 烷氧基羰基、C1~C6 烷基氨基、羟基、羧基、巯基、氨基、氰基、硝基以及 C1~C6 烷基磺酰基中选出的相同或不同的 1~3 个取代基)。

在一些优选的实施方案中,未取代或被选自下述的取代基取代的 C₁₋₁₈ 烷基: C₁₋₈ 烷氧羰基和 C₁₋₈ 烷氧羰基氧基;未取代或被选自下述的取代基取代的苯基、苄基或苯甲酰基 C₁₋₈ 烷基: 卤素和 C₁₋₈ 烷氧基。

一种所述的吡嗪醇类化合物的制备方法,包括以下步骤:

(1) 化合物 II 与化合物 III 发生 Suzuki 反应, 制备得到如通式 IV 所示的化合物;

(2) 将如通式 IV 所示的化合物水解制备得到如通式 I 所示的化合物; 其化学反应方程式如下:

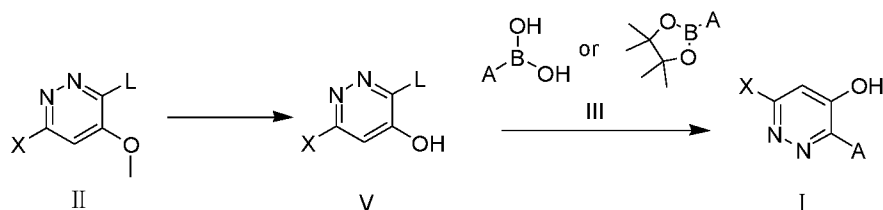


或者包括以下步骤:

(a) 将化合物 II 水解制备得到如通式 V 所示的化合物;

(b) V 所示的化合物与 III 所示的化合物发生 Suzuki 反应, 制备得到 I 所示的化合物;

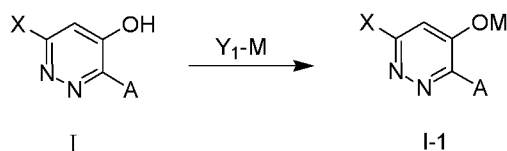
其化学反应方程式如下:



L 代表卤素, 优选溴, 其余各基团如前文中所定义。

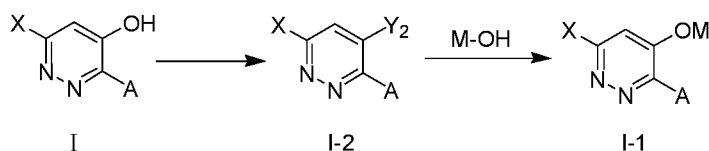
在一些优选的实施方案中, 上述各步骤均在 20~150℃ 范围内进行, 优选 50~130℃; 在一些优选的实施方案中, 所述步骤 (1) 和 (b) 在催化剂、碱和溶剂的存在下进行, 催化剂为 Pd(dppf)Cl₂CH₂Cl₂、Pd(dba)₂、Pd₂(dba)₃、Pd(PPh₃)₄、PdCl₂、Pd(OAc)₂、Pd(dppf)Cl₂、Pd(PPh₃)₂Cl₂ 或 Ni(dppf)Cl₂, 所述碱选自 Et₃N、NaHCO₃、KOAc、K₂CO₃、K₃PO₄、Na₂CO₃、CsF、Cs₂CO₃、t-BuONa、EtONa、KOH 和 NaOH 中的一种或两种以上, 所述溶剂为 THF/水、甲苯/水、DMF/水、1,4-二氧六环/水、甲苯/乙醇/水或乙腈/水、THF、甲苯、1,4-二氧六环、乙腈、DMF 体系; 所述步骤 (2) 和 (a) 在碱和溶剂的存在下进行或者在三溴化硼、氢溴酸醋酸溶液、盐酸甲醇溶液、盐酸乙酸乙酯溶液的存在下进行, 所述碱优选 NaOH、KOH、醋酸钾、醋酸钠, 所述溶剂优选水、DMSO。

当所述衍生物为酯和醚类衍生物时, 该方法的化学反应路线如下:



其中, Y₁ 代卤素, 优选氯、溴; 其余各基团如前文中所定义。

当所述衍生物为肟和羟胺类衍生物时, 该方法的化学反应路线如下:



其中，Y₂代卤素，优选氯、氟；其余各基团如前文中所定义。

在一些优选的实施方案中，所述制备其酯和醚类衍生物的反应以及制备其肟和羟胺类衍生物的第二步反应均在碱和溶剂的存在下进行，所述碱选自氢氧化钠、氢氧化钾、碳酸钠、碳酸钾、碳酸氢钠、碳酸铯、三乙胺和二异丙基乙基胺中的一种或两种以上；所述溶剂为 THF、1,4-二氧六环、甲苯、1,2-二氯乙烷、乙酸乙酯、乙腈、DMF、丙酮、二氯甲烷或氯仿。

在一些优选的实施方案中，所述制备其肟和羟胺类衍生物的反应中第一步在卤代试剂和溶剂的存在下进行，所述卤代试剂为 Phenofluor/氟化铯或 POCl₃，所述溶剂选自甲苯、1,2-二氯乙烷、DMF 中的一种或两种以上；所述反应温度均选自 0~120℃ 范围内，优选 20-80℃。

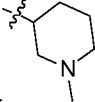
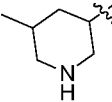
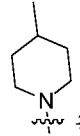
除非另有说明，本文中使用的术语具有本领域技术人员所通常理解的含义。当所用术语与本领域通常理解不同时，以本文中定义为准。

在上述通式所示化合物的定义和以下所有结构式中，所用专业术语不论单独使用或者使用在复合词中，代表如下取代基：具有多于两个碳原子的烷基基团或 “-(CH₂)_n-” 可为直链或支链的。如复合词“杂芳基烷基”中的烷基和“R-O-(CH₂)_n-”中 -(CH₂)_n- 的均可可为 -CH₂-、-CH₂CH₂-、-CH(CH₃)-、-C(CH₃)₂-等。烷基基团为，例如，甲基；乙基；正丙基或异丙基；正丁基、异丁基、叔丁基或 2-丁基；戊基；己基，例如正己基、异己基和 1,3-二甲基丁基。类似地，烯基是例如烯丙基、1-甲基丙-2-烯-1-基、2-甲基丙-2-烯-1-基、丁-2-烯-1-基、丁-3-烯-1-基、1-甲基丁-3-烯-1-基和 1-甲基丁-2-烯-1-基。炔基是例如炔丙基、丁-2-炔-1-基、丁-3-炔-1-基、1-甲基丁-3-炔-1-基。多重键可以在每个不饱和基团的任何位置。环烷基是具有三至八个碳原子的碳环饱和环体系，例如环丙基、环丁基、环戊基或环己基。类似地，环烯基是具有三至八个碳环成员的单环烯基，例如环丙烯基、环丁烯基、环戊烯基和环己烯基，其中双键可以在任何位置。卤素为氟、氯、溴或碘。

除非特别限定地，杂环基包括脂杂环基和杂芳基。

如果一个基团被某一基团取代，则这应理解为意指该基团被一个或多个相同或不同的选自所提及的那些基团的基团取代。另外，相同或不同取代基中含有的相同或不同的取代字符均独立地选择，可相同也可不同。这同样适用于由不同原子和单元形成的环体系。同时，权利要求的范围将排除那些为本领域技术人员知晓的在标准条件下化学不稳定的化合物。

另外，除非特别限定地，未标注具体连接位置的基团，可在任意位置连接，包括与 C 或 N 相连接的位置；如果其是被取代的，取代基同样可在任何位置取代，只要符合化合键连接

规则。如被 1 个甲基所取代的 ，可代表 、、 等。

本发明涉及的化合物可以以一种或者多种立体异构体的形式存在。各种异构体包括对映异构体、非对映异构体、几何异构体。这些异构体包括这些异构体的混合物均在本发明的范围内。

一种除草剂组合物，包括 (i) 如通式 I 所示的吡嗪醇类化合物或其如通式 I-1 所示的衍生物。

优选地，还包括 (ii) 一种或多种另外的除草剂和/或安全剂。

更优选地，还包括 (iii) 农业化学上可接受的制剂助剂。

作为混合物制剂中或罐混物中本发明化合物的组合物成分，例如可使用基于抑制例如下述酶的已知活性物质：乙酰乳酸合酶、乙酰辅酶 A 羧化酶、纤维素合酶、烯醇丙酮酰莽草酸-3-磷酸合酶、谷氨酰胺合酶、对羟苯基丙酮酸双加氧酶、八氢番茄红素脱氢酶 (Phytoendosaturase)、光系统 I、光系统 II、原卟啉原氧化酶，如其由例如 Weed Research 26 (1986) 441-445 或 "The Pesticide Manual", 第 15 版, The British Crop Protection Council and the Royal Soc. of Chemistry, 2009 和那里引用的文献所描述的。作为可与本发明的化合物组合的已知除草剂或植物生长调节剂可提及例如下述活性物质 (所述化合物或者用根据国际标准化组织 (ISO) 的“常见名称”或者用化学名称或用编码数命名) 并且总是包括其所有使用形式如酸、盐、酯和异构体如立体异构体和光学异构体。在此示例性提及一种和有时多种应用形式：

乙草胺 (Acetochlor)、Acibenzolar、阿拉酸式-S-甲基 (Acibenzolar-S-methyl)、三氟羧草醚 (Acifluorfen)、三氟羧草醚-钠 (Acifluorfen-sodium)、苯草醚 (Aclonifen)、甲草胺 (Alachlor)、二丙烯草胺 (Allidochlor)、禾草灭 (Alloxydim)、禾草灭钠 (Alloxydim-sodium)、莠灭净 (Ametryn)、氨唑草酮 (Amicarbazone)、呋喃丹 (Amidochlor)、酰嘧磺隆 (Amidosulfuron)、环丙嘧啶酸 (Aminocyclopyrachlor)、氯氨吡啶酸 (Aminopyralid)、杀草强 (Amitrole)、氨基磺酸铵 (Ammoniumsulfamat)、环丙嘧啶醇 (Ancymidol)、莎稗磷 (Anilofos)、黄草灵 (Asulam)、莠去津 (Atrazine)、唑啶草酮 (Azafenidin)、四唑嘧磺隆 (Azimsulfuron)、叠氮津 (Aziprotryn)、氟丁酰草胺 (Beflubutamid)、草除灵 (Benazolin)、草除灵-乙酯 (Benazolin-ethyl)、Bencarbazone、氟草胺 (Benfluralin)、呋草黄 (Benfuresate)、地散磷 (Bensulide)、苄嘧磺隆

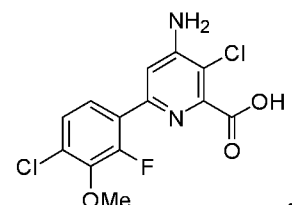
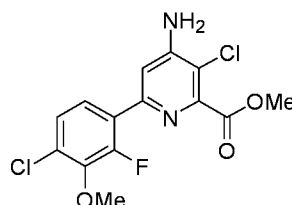
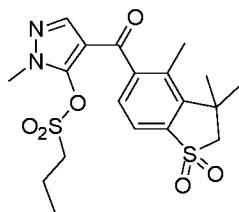
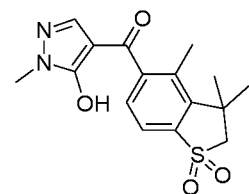
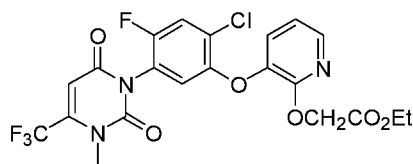
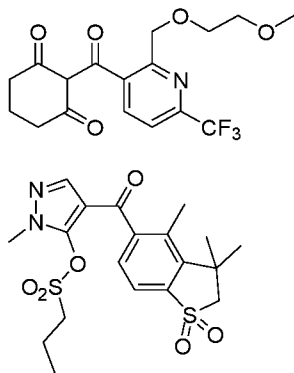
(Bensulfuron)、苄嘧磺隆-甲酯(Bensulfuron-methyl)、灭草松(Bentazone)、双苯嘧草酮(Benzfendizone)、双环磺草酮(Benzobicyclon)、吡草酮(Benzofenap)、氟草黄(Benzofluor)、Benzoylprop、Bicyclopyrone、治草醚(Bifenox)、双丙氨酰磷(Bilanafos)、双丙氨酰磷钠(Bilanafos-natrium)、Bispyribac、双草醚(Bispyribac-natrium)、除草定(Bromacil)、溴丁酰草胺(Bromobutide)、溴酚肟(Bromofenoxim)、溴草腈(Bromoxynil)、Bromuron、Buminafos、羧草酮(Busoxinone)、丁草胺(Butachlor)、氟丙嘧草酯(Butafenacil)、抑草磷(Butamifos)、丁烯草胺(Butenachlor)、仲丁灵(Butralin)、丁氧环酮(Butroxydim)、丁草特(Butylate)、唑草胺(Cafenstrole)、双酰草胺(Carbetamide)、Carfentrazone、唑草酮(Carfentrazone-ethyl)、甲氧除草醚(Chlomethoxyfen)、草灭畏(Chloramben)、Chlorazifop、Chlorazifop-butyl、氯溴隆(Chlorbromuron)、氯草灵(Chlorbufam)、伐草克(Chlorfenac)、伐草克钠(Chlorfenac-natrium)、燕麦酯(Chlorfenprop)、整形醇(Chlorflurenol)、整形素(Chlorflurenol-methyl)、氯草敏(Chloridazon)、氯嘧磺隆(酸)(Chlorimuron)、氯嘧磺隆(Chlorimuron-ethyl)、矮壮素(Chlormequat-chloride)、草枯醚(Chlornitrofen)、氯酞酰亚胺(Chlorophthalim)、敌草索(Chlorthal-dimethyl)、绿麦隆(Chlorotoluron)、氯磺隆(Chlorsulfuron)、Cinidon、吲哚酮草酯(Cinidon-ethyl)、环庚草醚(Cinmethylin)、醚磺隆(Cinosulfuron)、烯草酮(Clethodim)、游离炔草酸(Clodinafop)、炔草酯(Clodinafop-propargyl)、苯哒嗪酸(Clofencet)、异草酮(Clomazone)、氯甲酰草胺(Clomeprop)、坐果安(Cloprop)、氯草啶(Clopyralid)、Cloransulam、氯酯磺草胺(Cloransulam-methyl)、苄草隆(Cumyluron)、氰脒(Cyanamide)、草净津(Cyanazine)、环丙酰草胺(Cyclanilide)、环草敌(Cycloate)、环丙嘧磺隆(Cyclosulfamuron)、噻草酮(Cycloxydim)、环莠隆(Cycluron)、Cyhalofop、氟氟草酯(Cyhalofop-butyl)、牧草快(Cyperquat)、环草津(Cyprazine)、三环赛草胺(Cyprazole)、2,4-D、2,4-DB、杀草隆/汰草龙(Daimuron/dymron)、茅草枯(Dalapon)、丁酰肼(Daminozide)、棉隆(Dazomet)、正癸醇、甜菜安(Desmedipham)、敌草净(Desmetryn)、Detosyl-Pyrazolate (DTP)、燕麦敌(Diallate)、麦草畏(Dicamba)、敌草腈(Dichlobenil)、2,4-滴丙酸(Dichlorprop)、对-2,4-滴丙酸(Dichlorprop-P)、禾草灵酸(Diclofop)、禾草灵(Diclofop-methyl)、精吡氟禾草灵(Diclofop-P-methyl)、双氯磺草胺(Diclosulam)、乙酰甲草胺(Diethatyl)、乙酰甲草胺(Diethatyl-ethyl)、枯莠隆(Difenoxuron)、野燕枯(Difenzoquat)、吡氟酰草胺(Diflufenican)、氟吡草腈(Diflufenzopyr)、二氟吡隆(Diflufenzopyr-natrium)、丁噁隆(Dimefuron)、敌草克钠(Dikegulac-sodium)、哌草丹(Dimepiperate)、二甲草胺(Dimethachlor)、戊草津(Dimethametryn)、二甲吩草胺(Dimethenamid)、高效噻吩草胺(Dimethenamid-P)、噻节因(Dimethipin)、醚黄隆(Dimetrasulfuron)、氨基灵(Dinitramine)、

地乐酚(Dinoseb)、特乐酚(Dinoterb)、双苯酰草胺(Diphenamid)、异丙净(Dipropetryn)、敌草快(Diquat)、二溴敌草快(Diquat dibromide)、氟硫草定(Dithiopyr)、敌草隆(Diuron)、DNOC、克菊特(Eglinazine-ethyl)、茵多酸(Endothal)、EPTC、戊草丹(Esprocarb)、乙丁烯氟灵(Ethalfuralin)、胺苯磺隆(Ethametsulfuron)、甲基胺苯磺隆(Ethametsulfuron-methyl)、乙烯利(Ethephon)、磺塞隆(Ethidimuron)、乙嗪草酮(Ethiozin)、乙氧呋草黄(Ethofumesate)、氯氟草醚(Ethoxyfen)、氯氟草醚乙酯(Ethoxyfen-ethyl)、乙氧磺隆(Ethoxysulfuron)、乙氧苯草胺(Etobenzanid)、F-5331, 即 N-[2-氯-4-氟-5-[4-(3-氟丙基)-4,5-二氢-5-氧代-1H-四唑-1-基]-苯基]乙磺酰胺, F-7967, 即 3-[7-氯-5-氟-2-(三氟甲基)-1H-苯并咪唑-4-基]-1-甲基-6-(三氟甲基)嘧啶-2,4(1H,3H)-二酮、涕丙酸(Fenoprop)、噁唑禾草灵(Fenoxaprop)、精噁唑禾草灵(Fenoxaprop-P)、噁唑禾草灵乙酯(Fenoxaprop-ethyl)、精噁唑禾草灵乙酯(Fenoxaprop-P-ethyl)、Fenoxasulfone、四唑酰草胺(Fentrazamide)、非草隆(Fenuron)、麦草伏(Flamprop)、高效麦草氟异丙酯(Flamprop-M-isopropyl)、高效麦草氟甲酯(Flamprop-M-methyl)、啶嘧磺隆(Flazasulfuron)、双氟磺草胺(Florasulam)、吡氟禾草灵(Fluazifop)、精吡氟禾草灵(Fluazifop-P)、吡氟禾草灵丁酯(Fluazifop-butyl)、精吡氟禾草灵丁酯(Fluazifop-P-butyl)、异丙吡草酯(Fluazolate)、氟酮磺隆(Flucarbazone)、氟酮磺隆钠(Flucarbazone-sodium)、氟吡磺隆(Flucetosulfuron)、氟消草(Fluchloralin)、氟噻草胺(Flufenacet (Thiafluamide))、Flufenpyr、氟吡嗪草酯(Flufenpyr-ethyl)、氟节胺(Flumetralin)、唑嘧磺草胺(Flumetsulam)、氟烯草酸(Flumiclorac)、氟胺草酯(Flumiclorac-pentyl)、丙炔氟草胺(Flumioxazin)、炔草胺(Flumipropyn)、伏草隆(Fluometuron)、硝草醚(Fluorodifen)、乙羧氟草醚酸(Fluoroglycofen)、乙羧氟草醚乙酯(Fluoroglycofen-ethyl)、氟胺草唑(Flupoxam)、Flupropacil、四氟丙酸(Flupropanate)、Flupyr-sulfuron、氟啶嘧磺隆(Flupyr-sulfuron-methyl-sodium)、抑草丁(Flurenol)、茚醇丁酯(Flurenol-butyl)、氟啶草酮(Fluridone)、氟咯草酮(Flurochloridone)、氯氟吡氧乙酸(Fluroxypyr)、氯氟吡氧乙酸酯(Fluroxypyr-meptyl)、呋嘧醇(Flurprimidol)、呋草酮(Flurtamone)、Fluthiacet、氟噻甲草酯(Fluthiacet-methyl)、氟唑草胺(Fluthiamide)、氟磺胺草醚(Fomesafen)、甲酰胺磺隆(Foramsulfuron)、氯吡脲(Forchlorfenuron)、杀木磷(Fosamine)、呋氧草醚(Furyloxyfen)、赤霉酸(Gibberellinsäure)、草铵膦(Glufosinate)、草铵膦铵盐(Glufosinate-ammonium)、精草丁膦(Glufosinate-P)、精草铵膦(Glufosinate-P-ammonium)、精草铵膦钠(Glufosinate-P-natrium)、草甘膦(Glyphosate)、草甘膦异丙基铵盐(Glyphosate-isopropylammonium)、H-9201, 即 O-(2,4-二甲基-6-硝基苯基)-O-乙基-异丙基硫代磷酰胺、Halosafen、氯吡嘧磺隆(Halosulfuron)、氯吡嘧磺隆甲酯(Halosulfuron-methyl)、

氟吡甲禾灵(Haloxypop)、高效氟吡甲禾灵(Haloxypop-P)、吡氟氯禾灵-乙氧基乙酯(Haloxypop-ethoxyethyl)、高效吡氟氯禾灵-乙氧基乙酯(Haloxypop-P-ethoxyethyl)、吡氟氯禾灵-甲酯(Haloxypop-methyl)、高效吡氟氯禾灵-甲酯(Haloxypop-P-methyl)、环嗪酮(Hexazinone)、HW-02, 即 1-(二甲氧基磷酰基)乙基(2,4-二氯苯氧基)乙酸酯, 咪草酸(Imazamethabenz)、咪草酸甲酯(Imazamethabenz-methyl)、咪草啞酸(Imazamox)、铵基咪草啞酸(Imazamox-ammonium)、甲基咪草烟(Imazapic)、灭草烟(Imazapyr)、灭草烟异丙铵盐(imazapyr-isopropylammonium)、咪唑喹啉酸(Imazaquin)、咪唑喹啉酸铵(Imazaquin-ammonium)、咪唑乙烟酸(Imazethapyr)、咪唑乙烟酸铵(Imazethapyr-ammonium)、咪唑磺隆(Imazosulfuron)、抗倒胺(Inabenzide)、茚草酮(Indanofan)、Indaziflam、吲哚乙酸(IAA)、4-吲哚-3-基丁酸(IBA)、碘甲磺隆(Iodosulfuron)、甲基碘磺隆钠盐(Iodosulfuron-methyl- natrium)、碘苯腈(Ioxynil)、三唑酰草胺(Ipfencarbazone)、草特灵(Isocarbamid)、异丙乐灵(Isopropalin)、异丙隆(Isoproturon)、异恶隆(Isouron)、异噁酰草胺(Isoxaben)、异噁氯草酮(Isoxachlortole)、异噁唑草酮(Isoxaflutole)、异噁草醚(Isoxapyrifop), KUH-043, 即 3-([5-(二氟甲基)-1-甲基-3-(三氟甲基)-1H-吡唑-4-基]甲基)磺酰基)-5,5-二甲基-4,5-二氢-1,2-噁唑、特胺灵(Karbutilate)、Ketospiradox、乳氟禾草灵(Lactofen)、环草啞(Lenacil)、利谷隆(Linuron)、抑芽素(Maleinsäure-hydrazid)、MCPA、MCPB、MCPAB-甲酯、-乙酯和-钠盐、2-甲-4-氯苯氧丙酸(Mecoprop)、2-甲-4-氯苯氧丙酸钠、2-甲-4-氯苯氧丙酸丁氧基乙酯(Mecoprop-butotyl)、高-2-甲-4-氯苯氧丙酸丁氧基乙酯(Mecoprop-P-butotyl)、高-2-甲-4-氯苯氧丙酸二甲基铵(Mecoprop-P-dimethylammonium)、高-2-甲-4-氯苯氧丙酸-2-乙基己酯(Mecoprop-P-2-ethylhexyl)、高-2-甲-4-氯苯氧丙酸钾(Mecoprop-P-kalium)、苯噻酰草胺(Mefenacet)、氟磺酰草胺(Mefluidide)、甲哌鎗(Mepiquatchlorid)、Mesosulfuron、甲基二磺隆(Mesosulfuron-methyl)、甲基磺草酮(Mesotrione)、噻唑隆(Methabenzthiazuron)、威百亩(Metam)、噁唑酰草胺(Metamifop)、苯噻草酮(Metamitron)、吡草胺(Metazachlor)、双醚氯吡嘧磺隆(Metazosulfuron)、灭草定(Methazole)、甲硫嘧磺隆(Methiopyrsulfuron)、Methiozolin、去草酮(Methoxyphenone)、甲基杀草隆(Methyldymron)、1-甲基环丙烯、异硫氰酸甲酯、吡喃隆(Metobenzuron)、溴谷隆(Metobromuron)、异丙甲草胺(Metolachlor)、精-异丙甲草胺(S-Metolachlor)、磺草唑胺(Metosulam)、甲氧隆(Metoxuron)、噻草酮(Metribuzin)、甲磺隆(Metsulfuron)、甲磺隆-甲酯(Metsulfuron-methyl)、禾草敌(Molinate)、庚酰草胺(Monalide)、Monocarbamide、硫酸二氢单脲(Monocarbamide-dihydrogensulfat)、绿谷隆(Monolinuron)、单嘧磺酯(Monosulfuron)、单嘧磺酯(Monosulfuron-ester)、灭草隆(Monuron), MT-128, 即 6-氯-N-[(2E)-3-氯丙-2-烯-1-

基]-5-甲基-N-苯基吡嗪-3-胺, MT-5950, 即 N-[3-氯-4-(1-甲基乙基)苯基]-2-甲基戊酰胺、NGGC-011、萘丙胺(Naproanilide)、敌草胺(Napropamide)、萘草胺(Naptalam)、NC-310, 即 4-(2,4-二氯苯甲酰基)-1-甲基-5-苄氧基吡唑, 草不隆(Neburon)、烟嘧磺隆(Nicosulfuron)、氟氯草胺(Nipyraclofen)、甲磺乐灵(Nitralin)、除草醚(Nitrofen)、复硝酚钠(Nitrophenolate-sodium (异构体混合物))、三氟甲草醚(Nitrofluorfen)、壬酸、氟草敏(Norflurazon)、坪草丹(Orbencarb)、嘧苯胺磺隆(Orthosulfamuron)、氧磺乐灵(Oryzalin)、稻思达(Oxadiargyl)、噁草酮(Oxadiazon)、环氧嘧磺隆(Oxasulfuron)、去稗安(Oxaziclonofen)、乙氧氟草醚(Oxyfluorfen)、多效唑(Paclobutrazol)、百草枯(Paraquat)、二氯百草枯(Paraquat dichloride)、正壬酸 (Pelargonsäure)、二甲戊乐灵(Pendimethalin)、Pendralin、五氟磺草胺(Penoxsulam)、甲氧酰草胺(Pentanochlor)、环戊恶草酮(Pentoxazone)、黄草伏(Perfluidone)、烯草胺(Pethoxamid)、棉胺宁(Phenisopham)、甜菜宁(Phenmedipham)、甜菜宁-乙酯(Phenmedipham-ethyl)、胺氯吡啶酸(Picloram)、氟吡酰草胺(Picolinafen)、唑啉草酯(Pinoxaden)、哌草磷(Piperophos)、Pirifenop、Pirifenop-butyl、丙草胺(Pretilachlor)、氟嘧磺隆酸(Primisulfuron)、氟嘧磺隆-甲酯(Primisulfuron-methyl)、烯丙苯噻唑(Probenazole)、氟唑草胺(Profluazol)、环丙腈津(Procyazine)、氨基丙氟灵(Prodiamine)、氟乐灵(Prifluraline)、环苯草酮(Profoxydim)、调环酸(Prohexadione)、调环酸钙(Prohexadione-calcium)、茉莉酮(Prohydrojasmon)、扑灭通(Prometon)、扑草净(Prometryn)、毒草胺(Propachlor)、敌稗(Propanil)、噁草酸(Propaquizafop)、扑灭津(Propazine)、苯胺灵(Propham)、异丙草胺(Propisochlor)、丙苯磺隆(Propoxycarbazon)、丙苯磺隆-钠(Propoxycarbazon-sodium)、Propyrisulfuron、戊炔草胺(Propyzamide)、甲硫磺乐灵(Prosulfalin)、苄草丹(Prosulfocarb)、氟磺隆(Prosulfuron)、丙炔草胺(Prynachlor)、双唑草腈(Pyraclonil)、吡草醚(Pyraflufen)、吡草醚-乙酯(Pyraflufen-ethyl)、磺酰草吡唑(Pyrasulfotole)、苄草唑(Pyrazolynate)(吡唑特(Pyrazolate))、吡嘧磺隆(Pyrazosulfuron)、吡嘧磺隆-乙酯(Pyrazosulfuron-ethyl)、苄草唑(Pyrazoxyfen)、Pyribambenz、异丙酯草醚(Pyribambenz-isopropyl)、丙酯草醚(Pyribambenz-propyl)、嘧啶肟草醚(Pyribenzoxim)、稗草丹(Pyributicarb)、Pyridafol、吡草特(Pyridate)、环酯草醚(Pyriftalid)、嘧草醚(Pyriminobac)、嘧草醚-甲酯(Pyriminobac-methyl)、吡丙醚(Pyrimisulfan)、嘧硫草醚(Pyriothiobac)、嘧硫草醚钠(Pyriothiobac-sodium)、Pyroxasulfone、甲氧磺草胺(Pyroxsulam)、二氯喹啉酸(Quinclorac)、氯甲喹啉酸(Quinmerac)、灭藻醌(Quinoclamine)、喹禾灵(Quizalofop)、喹禾灵-乙酯(Quizalofop-ethyl)、精喹禾灵(Quizalofop-P)、精喹禾灵-乙酯(Quizalofop-P-ethyl)、喹禾糠酯(Quizalofop-P-tefuryl)、砒嘧磺隆(Rimsulfuron)、苯嘧磺草胺(Saflufenacil)、仲丁通

(Secbumeton)、烯禾啉(Sethoxydim)、环草隆(Siduron)、西玛津(Simazine)、西草净(Simetryn)、SN-106279, 即 甲基-(2R)-2-{7-[2-氯-4-(三氟甲基)苯氧基]-2-萘基}氧)丙酸酯, 磺草酮(Sulcotrione)、莱草畏(Sulfallate (CDEC))、甲基磺酰甲胺(Sulfentrazone)、甲嘧磺隆(Sulfometuron)、甲嘧磺隆-甲酯(Sulfometuron-methyl)、草硫膦(Sulfosate)(草甘膦三甲基硫酸盐(Glyphosate-trimesium))、磺酰磺隆(Sulfosulfuron)、SYN-523, SYP-249, 即 1-乙氧基-3-甲基-1-氧代丁-3-烯-2-基-5-[2-氯-4-(三氟甲基)苯氧基]-2-硝基苯甲酸酯, SYP-300, 即 1-[7-氯-3-氧代-4-(丙-2-炔-1-基)-3,4-二氢-2H-1,4-苯并噻嗪-6-基]-3-丙基-2-硫代咪唑烷-4,5-二酮, 牧草胺(Tebutam)、丁噻隆(Tebuthiuron)、四氯硝基苯(Tecnazene)、特呋三酮(Tefuryltrione)、环磺酮(Tembotrione)、得杀草(Tepraloxym)、特草定(Terbacil)、特草灵(Terbucarb)、特丁草胺(Terbuchlor)、特丁通(Terbumeton)、特丁津(Terbuthylazine)、特丁净(Terbutryn)、噻吩草胺(Thenylchlor)、氟噻草胺(Thiaflumide)、噻氟隆(Thiazafluron)、噻草定(Thiazopyr)、噻二唑草胺(Thidiazimin)、噻苯隆(Thidiazuron)、噻酮磺隆(Thiencarbazone)、噻酮磺隆-甲酯(Thiencarbazone-methyl)、噻吩磺隆(Thifensulfuron)、甲基噻吩磺隆(Thifensulfuron-methyl)、杀草丹(Thiobencarb)、丁草威(Tiocarbazil)、苯吡唑草酮(Toprimezone)、三甲苯草酮(Tralkoxydim)、氟酮磺草胺(Triafamone)、野麦畏(Triallate)、醚苯磺隆(Triasulfuron)、三嗪氟草胺(Triaziflam)、Triazofenamide、苯磺隆(Tribenuron)、甲基苯磺隆(Tribenuron-methyl)、三氯乙酸(TCA)、绿草定(Triclopyr)、灭草环(Tridiphane)、草达津(Trietazine)、三氟啉磺隆(Trifloxysulfuron)、三氟啉磺隆钠盐(Trifloxysulfuron-sodium)、氟乐灵(Trifluralin)、氟胺磺隆酸(Triflusulfuron)、氟胺磺隆-甲酯(Triflusulfuron-methyl)、三甲隆(Trimeturon)、抗倒酯酸(Trinexapac)、抗倒酯(Trinexapac-ethyl)、三氟甲磺隆(Tritosulfuron)、Tsitodef、烯效唑(Uniconazole)、烯效唑-P(Uniconazole-P)、灭草猛(Vernolate), ZJ-0862, 即 3,4-二氯-N-{2-[(4,6-二甲氧基嘧啶-2-基)氧基]苄基}苯胺, 以及下列化合物:

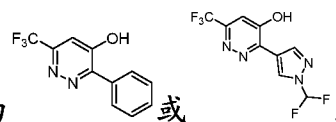


所述另外的除草剂选自 HPPD 抑制剂、激素类、PDS 抑制剂中的一种; 优选地, HPPD

抑制剂为磺草酮 (CAS 号: 99105-77-8)、硝磺草酮 (CAS 号: 104206-82-8)、苯唑草酮 (CAS 号: 210631-68-8)、环磺酮 (CAS 号: 335104-84-2)、氟吡草酮 (CAS 号: 352010-68-5)、呋喃磺草酮 (CAS 号: 473278-76-1)、双环磺草酮 (CAS 号: 156963-66-5)、lancotrione (CAS 号: 1486617-21-3)、双唑草酮 (CAS 号: 1622908-18-2)、环吡氟草酮 (CAS 号: 1855929-45-1)、三唑磺草酮 (CAS 号: 1911613-97-2)、苯唑氟草酮 (CAS 号: 1992017-55-6)、磺酰草吡唑 (CAS 号: 365400-11-9)、吡唑特 (CAS 号: 58011-68-0)、吡草酮 (CAS 号: 82692-44-2)、tolpyralate (CAS 号: 1101132-67-5)、fenquinotrione (CAS 号: 1342891-70-6)、异噁唑草酮 (CAS 号: 141112-29-0); 激素类为氯氟吡氧乙酸 (CAS 号: 69377-81-7) 及其衍生物、氟氯吡啶酯 (CAS 号: 943831-98-9)、氯氟吡啶酯 (CAS 号: 1390661-72-9)、二氯喹啉酸 (CAS 号: 84087-01-4)、氯甲喹啉酸 (CAS 号: 90717-03-6)、2 甲 4 氯 (CAS 号: 94-74-6)、2-甲基-4-氯苯氧丙酸 (CAS 号: 93-65-2)、MCPB (CAS 号: 94-81-5)、2,4-D (CAS 号: 94-75-7)、2,4-滴丙酸 (CAS 号: 120-36-5)、2,4-DB (CAS 号: 94-82-6)、麦草畏 (CAS 号: 1918-00-9)、氯氯吡啶酸 (CAS 号: 1918-02-1)、三氯吡氧乙酸 (CAS 号: 55335-06-3)、二氯吡啶酸 (CAS 号: 1702-17-6)、绿草定 (CAS 号: 55335-06-3) 及其衍生物, PDS 抑制剂为氟咯草酮 (CAS 号: 61213-25-0)、呋草酮 (CAS 号: 96525-23-4)、吡氟酰草胺 (CAS 号: 83164-33-4)、氟吡酰草胺 (CAS 号: 137641-05-5)、氟丁酰草胺 (CAS 号: 113614-08-7)、氟草敏 (CAS 号: 27314-13-2)、氟啶草酮 (CAS 号: 59756-60-4)。

其中, 氯氟吡氧乙酸衍生物包含但不限于: 氯氟吡氧乙酸异辛酯; 2 甲 4 氯、2-甲基-4-氯苯氧丙酸、MCPB 衍生物包含但不限于: 钠盐、钾盐、二甲铵盐、异丙胺盐等, 以及甲酯、乙酯、异辛酯、乙硫酯等; 2,4-D、2,4-滴丙酸、2,4-DB 衍生物包含但不限于: 盐如钠盐、钾盐、二甲铵盐、三乙醇铵盐、异丙胺盐、胆碱等, 以及酯如甲酯、乙酯、丁酯、异辛酯等。

在一些优选的实施方案中, 所述组分 (i) 为



在一些优选的实施方案中, 所述另外的除草剂选自磺草酮、硝磺草酮、苯唑草酮、环磺酮、氟吡草酮、呋喃磺草酮、双环磺草酮、lancotrione、双唑草酮、环吡氟草酮、三唑磺草酮、苯唑氟草酮、磺酰草吡唑、吡草酮、tolpyralate、异噁唑草酮、氯氟吡氧乙酸或其酯、氟氯吡啶酯、氯氟吡啶酯、二氯喹啉酸、2 甲 4 氯或其盐/酯、2-甲基-4-氯苯氧丙酸或其盐/酯、MCPB 或其盐/酯、2,4-D 或其盐/酯、2,4-滴丙酸或其盐/酯、2,4-DB 或其盐/酯、麦草畏、氯氯吡啶酸、三氯吡氧乙酸、二氯吡啶酸、绿草定、氟咯草酮、呋草酮、吡氟酰草胺、氟吡酰草胺、氟丁酰草胺、氟草敏和氟啶草酮中的一种或多种。

一种控制有害植物的方法, 包括将除草有效量的前文所述的吡嗪醇类化合物或其衍生物

中的至少一种或所述的除草剂组合物施用在所述有害植物上或者其所在区域。

前文所述的吡嗪醇类化合物或其衍生物或所述的除草剂组合物在控制有害植物上的用途。

优选地，所述吡嗪醇类化合物或其衍生物或所述的除草剂组合物用于防除有用作物中的有害植物。

更优选地，所述有用作物为转基因作物或者基因组编辑技术处理过的作物。在一些优选的实施方案中，所述有用作物选自小麦、玉米、水稻、大豆、棉花、油菜、谷子和高粱。

对于许多经济上重要的单子叶和双子叶有害植物，本发明的式 I 化合物具有突出的除莠活性。本发明的活性物质也对于多年生杂草有效，这些杂草从根茎、根状茎、或其它的多年生的器官上生长出来，很难控制。关于这点，是否在播种前、萌发前或萌发后使用该物质一般不重要。特别提及本发明化合物可以控制的单子叶和双子叶杂草群的代表例子，没有限制到的确定的物种。活性物质有效作用的杂草物种的例子包括单子叶植物：一年生燕麦属、黑麦、草属、看麦娘属、法拉里斯、稗、马唐属、狗尾草属和莎草属，和多年生的冰草属、狗牙根属、白茅属和高粱属、以及多年生的莎草属。

关于双子叶杂草物种，其作用可以扩展到的物种例如一年生的猪殃殃属、董菜属、婆婆纳属、野芝麻属、繁缕属、苋属、白芥属、番薯属、黄花稔属、母菊属和苘麻属，和多年生杂草旋花属、蓟属、酸模属和艾属。本发明活性物质在水稻播种这种特定条件下有效控制有害植物，例如稗、慈姑属、泽泻属、荸荠属、蔗草和莎草属。如果将本发明化合物在萌芽前施用于土壤表面，可以在杂草长出前完全预防杂草的秧苗，或在杂草长出子叶时就停止生长，最后在三到四星期之后完全死亡。本发明化合物特别抗下述植物的活性优良，阿皮拉草、小野芝麻、卷茎蓼、繁缕、长春藤叶婆婆纳、阿拉伯婆婆纳、三色堇和苋、猪殃殃属和地肤。

在一些优选的实施方案中，本申请所述化合物对下述有害植物表现出优异的抑制活性：反枝苋、蕻菜、婆婆纳、藜、稗草、狗尾草、猪殃殃、苘麻、播娘蒿和牛膝菊。

虽然本发明化合物对于单子叶和双子叶的杂草具有优良的除莠活性，但对于重要的经济类作物植物，例如小麦、大麦、黑麦、稻子、玉米、甜菜、棉花和大豆却根本没有损害，或者是损害是微不足道的。特别是和谷类作物相容得很好，例如小麦、大麦和玉米，特别是小麦。因此，本发明化合物非常适于有选择地控制在农用作物或观赏植物中的无用植物。

由于它们的除莠性质，在已知或将要出现的遗传工程的植物耕种中，这些活性物质可以用于控制有害植物。转基因植物通常具有优越的性状，例如对特定杀虫剂特别是特定除草剂的抵抗力，对植物病害或植物病害的致病微生物的抵抗力，例如特定的昆虫或真菌、细菌或病毒的微生物。其它的特别性状与产品的下述条件有关，例如，数量、质量、贮存稳定性、

组分和特殊的成分。如此，已经知道获得的转基因植物产品具有增加的淀粉含量或改进的淀粉质量或不同的脂肪酸成份。

本发明的式 I 化合物或其盐优选用于，经济上重要的转基因的作物和观赏植物，例如谷类，例如小麦、大麦、黑麦、燕麦、粟、稻子、木薯和玉米、或用于甜菜、棉花、大豆、油菜籽、马铃薯、番茄、豌豆及其他蔬菜类植物的耕种。式 I 化合物优选用于有用植物耕种的除草剂，这些植物具有抗药性或通过遗传工程对除草剂的毒害作用具有抗药性。

传统的繁育具有比已知植物具有改进形状植物的方法包括，例如传统的交配方法和突变株繁育。换句话说，可以借助于遗传工程的方法（参见，例如 EP-0221044 A，EP-0131624 A）来得到具有改进性状的新植物。例如，已经描述了几个方法：

- 为了改进植物中的淀粉合成，利用遗传工程改变作物植物（例如 WO 92/11376，WO 92/14827，WO 91/19806）；

- 对特定的除草剂具有抗性的转基因作物植物，对草丁膦除草剂（例如 EP-0242236 A，EP-0242246 A）或对草甘膦类除草剂（WO 92/00377），或对磺酰脲类除草剂（EP-0257993 A，US-5013659 A）；

- 例如棉花的转基因作物植物，它能够产生苏芸金杆菌毒素（Bt 毒素），这种毒素可以防御特定害虫对植物的侵害（EP-0142924 A，EP-0193259 A）；

- 具有改进的脂肪酸成份的转基因作物植物（WO91/13972）。

已经知道许多能够制备具有改进性状转基因植物分子生物技术（参见，例如 Sambrook 等，1989，分子扩增，实验手册第二版，美国冷泉港实验室出版，冷泉港，纽约；或 Winnacker “Gene und Klone” [基因和克隆]，VCH Weinheim，第二版 1996 或 Christou，“植物科学的趋势” 1（1996）423 - 431）。为了实现遗传工程的操作，可能将核酸分子引入质粒，通过 DNA 序列的重组，发生突变或序列改变。利用上述的标准方法，例如可以交换底物、除去部分序列或增加自然的或合成的序列。为了将 DNA 片段互相连接，有可能在片段上附带有结合体或连接体。

可以用下述方法制备降低活性的基因产品的植物细胞，例如通过表达至少一种适当的反义-RNA、正义-RNA 来达到共抑制的效果，或通过表达至少一种适当构造的核糖酶，它特定裂解上述基因产品的转录产物。

为此目的，有可能使用包含基因产物全部编码序列的 DNA 分子，包括有可能存在的任何旁侧序列，和使用包含仅仅一部分编码序列的 DNA 分子，这些部分必须足够长以达到在细胞中反义的效果。也可以使用与基因产物编码序列具有高度同源性但不完全相同的序列。

当在植物中表达核酸分子时，合成的蛋白质可以在任何期望的植物细胞室中定位。然而为了在特定的室定位，有可能例如将编码区和 DNA 序列连接，以确保在特定位置定位。这些序列为本领域所属技术人员已知的（参见，例如 Braun 等，EMBO J. 11（1992）3219 - 3227；Wolter 等，Proc . Natl.Acad. Sci. USA 85 (1988)，846 - 850；Sonnewald 等 Plant J. 1（1991），95 - 106）。

利用已知的技术可以将转基因植物细胞重组到整个植物上。转基因植物可以为任何期望的植物品种，即单子叶和双子叶植物。用这样的方式，通过超表达、禁止或抑制同源（=自然的）基因或基因序列，或通过异种的（=外部的）基因或者基因序列的表达，有可能获得改进性状的转基因植物。

当在转基因的作物上使用本发明的活性物质时，除了具有在其它作物上可观察到的抑制有害植物的效果外，经常在相应的转基因作物上会有特殊的效果，例如可以改进或扩大控制杂草的范围，改进应用时的施用量，优选转基因作物的抗药性和除草剂的性能很好的结合，并且转基因的作物植物的生长和产率的影响。因此本发明也提供了所述化合物的用途，作为除草剂控制转基因作物植物中的有害植物。

另外本发明化合物可以明显调节作物植物的生长。通过调节参与植物代谢，使用这些化合物定向控制植物的组分和促进收获，例如使植物干化和矮化生长。而且它们也适于调节和抑制不希望的植物生长，而不破坏作物的生长。抑制植物的生长在许多单子叶植物和双子叶植物作物中起着非常重要的作用，因为这样可以减少或完全预防倒伏。

可以使用一般的制剂来应用本发明的化合物，可使用可湿性粉剂、浓缩乳剂、可喷洒的溶液、粉末或颗粒。这样本发明也提供了包括式 I 化合物的除草剂组合物。根据通常的生物学和/或化学的物理参数，可以用多种方式配制式 I 化合物。适合的制剂选择实例为：可湿性粉剂（WP）、水溶性的粉末（SP）、水溶性的浓缩物、浓缩乳剂（EC）、例如油在水中分散和水在油中分散的乳剂（EW）、可喷洒溶液、悬浮剂浓缩物（SC）、可分散油悬浮剂（OD）、以油或水为稀释剂的悬浮液、可混溶油的溶液、粉末（DP）、胶囊悬浮液（CS）、包核

（seeddressing）组合物、用于撒播和土壤施药的颗粒、喷射颗粒、涂覆颗粒和吸收颗粒，水中可分散的颗粒（WG）、水溶性的颗粒（SG）、ULV（超低容量）配方、微囊和蜡制品。这些单个的制剂类型为已知的，在下述文献中有描述，例如 Winnacker - Kuchler，"Chemische Technologie"[化学工艺]，第 7 卷，C.Hauser Verlag Munich，第 4 版 1986；Wade van Valkenburg，"Pesticide Formulations"，Marcel Dekker，N.Y.，1973；K.Martens，"Spray Drying"手册，第 3 版 1979，G.Goodwin Ltd.London。

必要的制剂助剂，例如惰性物质、表面活性剂、溶剂及其它添加剂同样为已知的，并在下述文件中描述，例如 Watkins 的“粉末稀释剂杀虫剂和载体手册”，第二版，Darland 书 Caldwell N.J.; H.v.01phen“粘土胶体化学的入门”，第二版，J. Wiley 和 Sons, N.Y.; C. Marsden 的“溶剂指南”第二版，Interscience，N.Y. 1963; McCutcheon 的“洗涤剂 and 乳化剂年报”，MC 发行公司，Ridgewood N.J.; Sisley 和 Wood，“表面活性剂百科全书”，化学出版公司，N.Y. 1964; Schönfeldt 的“Grenzflächenaktive Äthylenoxidaddkte”[环氧乙烷加成物表面活性剂]，Wiss. Verlagsgesell. Stuttgart 1976; Winnacker - Küchler 的“Chemische Technologie”[化学工艺]，第 7 卷，C. Hauser Verlag Munich，第 4 版 1986。

可湿性粉剂能均匀地分散在水中，除了活性物质，还包括稀释剂或惰性物质、离子和非离子型表面活性剂（润湿剂、分散剂），例如聚乙氧基烷基酚、聚乙氧基脂肪醇、聚氧乙基脂肪族胺、脂肪醇聚二醇醚硫酸盐、烷基磺酸盐、烷基苯基磺酸盐、木质磺酸钠、2,2'-二萘甲烷-6,6'-二磺酸钠、二丁基萘磺酸钠或油酰甲基牛磺酸钠。为了制备可湿性粉剂，将除草剂的活性物质细磨，例如使用常用的仪器，如用锤磨机、风扇磨碎机和喷气式磨碎机，同时或顺序混入助剂。

将活性物质溶解在有机溶剂中制备浓缩乳剂，溶剂例如丁醇、环己酮、二甲基甲酰胺、二甲苯或较高沸点的芳族化合物或碳氢化合物或溶剂的混合物，并再加入一种或多种离子的和/或非离子型表面活性剂（乳化剂）。可以使用的乳化剂的例子为例如十二烷基苯磺酸钙的烷基芳基磺酸钙，或非离子乳化剂，例如脂肪酸聚二醇酯、烷基芳香基聚二醇醚、脂肪醇聚二醇醚、氧化丙烯-环氧乙烷缩合产物、烷基聚醚、例如山梨糖醇酐脂肪酸酯的山梨聚糖酯，或例如聚氧化乙烯山梨糖醇酐脂肪酸酯的聚氧化乙烯山梨聚糖酯。

将活性物质和细碎的固态物质研磨得到粉末，固态物质例如滑石、如高岭土、皂土和叶蜡石的天然粘土、或硅藻土。以水或油为基底的悬浮液可以通过下述方法制备，例如利用商业上通用的玻璃珠研磨机进行湿磨，加入或不加入上述另一个制剂类型的表面活性剂。

制备例如水包油乳化剂（EW）的乳剂，可以使用含水的有机溶剂，使用搅拌器、胶体研磨器和/或静态混合器，如果需要，加入如上所述另一个制剂类型的表面活性剂。

用下述方法制备颗粒剂，将活性物质喷到吸附物上，使用惰性物料颗粒化，或将活性物质浓缩到例如沙、高岭石载体的表面，通过粘合剂将惰性物料粒化，粘合剂例如聚乙烯醇、聚丙烯酸钠或矿物油。可以用制备肥料颗粒剂的方法将合适的活性物质粒化，如果需要可以混有肥料。使用通常的方法制备水悬浮颗粒剂，例如喷洒-干燥，流化床造粒、磨盘造粒、使用高速混合机混合，并在无固体惰性物料的情况下挤压。

关于使用磨盘、流化床、挤压机和喷涂颗粒剂的制备方法，参见下述工艺，例如“*Spray Drying 手册*”第三版 1979，G. Goodwin 有限公司，伦敦；J.E. Browning, “*Agglomeration*”，化学和工程 1967, 147ff 页；“*Perry’s 化学的工程师手册*”，第五版，McGraw - Hill, 纽约 1973, 8 - 57 页。如果要知道关于作物保护产品的制剂，参见例如，G.C. Klingman, “*Weed Control as a Science*”，John Wiley 和 Sons 公司，纽约，1961 81 - 96 页和 J.D. Freyer, S.A. Evans “*杂草防除手册*”，第五版，Blackwell Scientific Publications, 牛津大学 1968, 101 - 103 页。

农用化学品制剂通常包含按重量计 0.1 到 99%，特别是 0.1 到 95% 的活性物质式 I。可湿性粉剂中活性物质的浓度为，按重量计例如从大约 10 到 99%，通常的制剂组分构成按重量计剩余量到 100%。活性物质在浓缩乳剂中的浓度按重量计可以为大约 1 到 90%，优选 5 到 80%。粉末制剂包含按重量计 1 到 30% 的活性物质，通常优选按重量计 5 到 20% 的活性物质，然而可喷洒的溶液包含按重量计大约 0.05 到 80%，优选 2 到 50% 的活性物质。关于水悬浮颗粒剂中活性物质的含量，主要根据活性物质为液体还是固态，和造粒时使用的助剂、填料等等。水悬浮颗粒剂中活性物质的含量例如按重量计在 1 到 95% 之间，优选按重量计在 10 到 80% 之间。

另外所述的活性物质的制剂可以包括增粘剂、润湿剂、分散剂、乳化剂、渗透剂、防腐剂、防冻剂、溶剂、填料、载体、着色剂、消泡剂、蒸发抑制剂和通常在所有情况下都常用的 pH 和粘度调节剂。

以这些制剂为基础，也可能和其他杀虫剂活性物质例如杀虫剂、杀螨剂、除草剂和杀菌剂混合，也可以和安全剂、肥料和/或植物生长调节剂混合，混合方式可以为预先混合好的或灌装混合。

当使用时，如果需要，将市售的制剂以常见的方式稀释，例如在可湿性粉剂、浓缩乳剂、悬浮液和在水中悬浮的颗粒时，使用水稀释。粉末、土壤施药所用的颗粒剂或撒播和喷洒的溶液，一般在使用前不需要进一步用惰性物质稀释。随着外部条件的变化，要求的式 I 化合物的使用量也不同，外部条件为，例如温度、湿度、使用的除草剂的性质等等。它可以有大的变化幅度，例如在 0.001 到 1.0kg/ha 之间，或更多的活性物质，但优选在 0.005 到 750g/ha 之间，特别是在 0.005 到 250g/ha 之间。

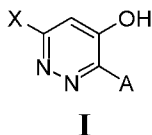
具体实施方式

以下实施例用于举例说明本发明，不应当视其为以任何方式限制本发明。本发明要求保护的权利要求范围通过权利要求书进行说明。

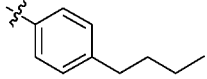
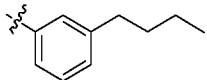
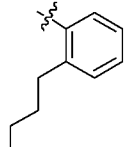
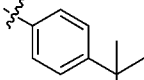
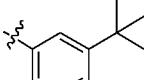
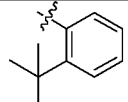
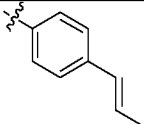
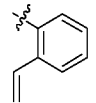
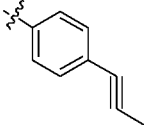
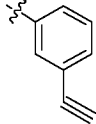
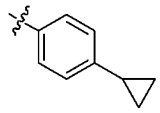
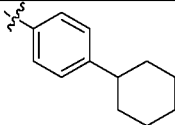
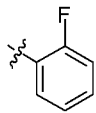
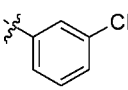
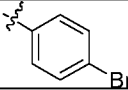
鉴于化合物的经济性与多样性，我们优选合成了一些化合物，在合成的诸多化合物中，选取部分列于下表 1 和表 2 中。具体的化合物结构及相应的化合物信息如表 1 和表 2 所示。

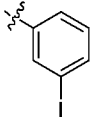
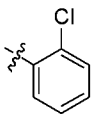
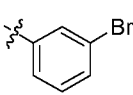
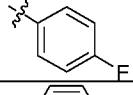
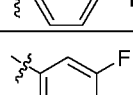
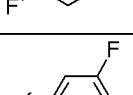
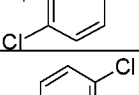
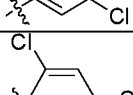
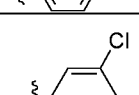
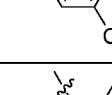
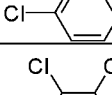
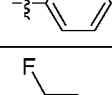
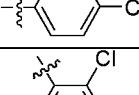
表 1 和表 2 中的化合物只是为了更好的说明本发明，但并不限定本发明，对于本领域的技术人员而言，不应将此理解为本发明上述主题的范围仅限于以下化合物。

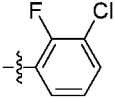
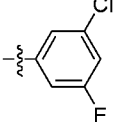
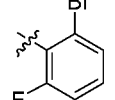
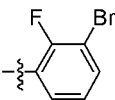
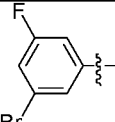
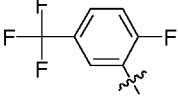
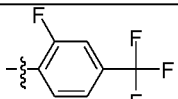
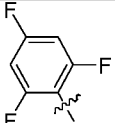
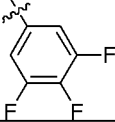
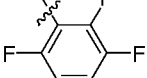
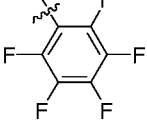
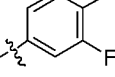
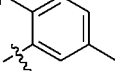
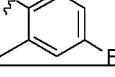
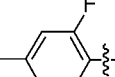
表 1 化合物 I 结构及其 ^1H NMR 数据

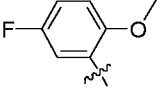
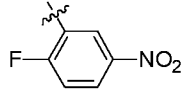
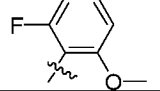
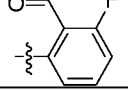
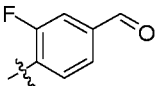
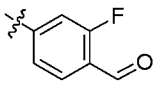
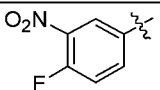
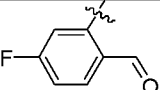
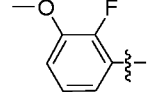
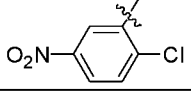
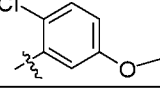
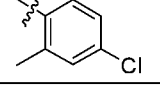
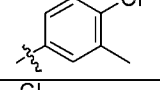
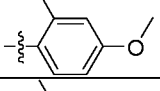
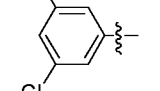
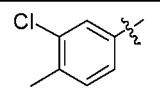
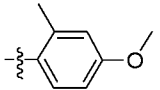
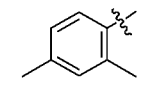


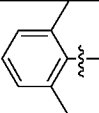
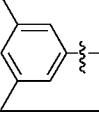
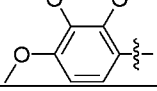
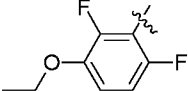
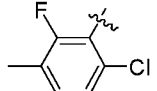
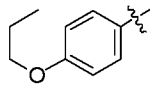
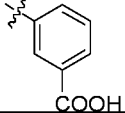
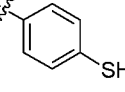
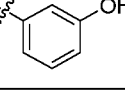
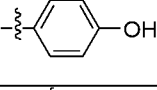
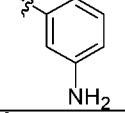
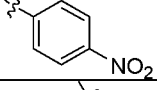
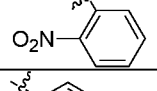
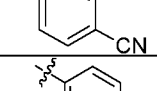
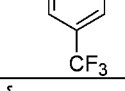
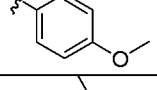
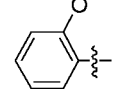
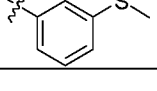
序号	X	A	^1H NMR
1	CF_3		(500 MHz, Chloroform-d) δ 7.55 – 7.47 (m, 2H), 7.41 – 7.27 (m, 3H), 7.06 (s, 1H), 5.58 (s, 1H).
2	CF_3		(500 MHz, Chloroform-d) δ 7.46 – 7.40 (m, 1H), 7.39 – 7.30 (m, 2H), 7.32 – 7.26 (m, 1H), 7.03 (s, 1H), 5.68 (s, 1H), 2.50 (s, 3H).
3	CF_3		(500 MHz, Chloroform-d) δ 7.45 – 7.41 (m, 1H), 7.40 – 7.30 (m, 2H), 7.29 – 7.23 (m, 1H), 7.06 (s, 1H), 5.58 (s, 1H), 2.50 (s, 3H).
4	CF_3		(500 MHz, Chloroform-d) δ 7.44 (d, $J = 7.5$ Hz, 2H), 7.22 (d, $J = 7.5$ Hz, 2H), 7.06 (s, 1H), 5.57 (s, 1H), 2.33 (s, 3H).
5	CF_3		(500 MHz, Chloroform-d) δ 7.47 – 7.44 (m, 1H), 7.43 – 7.34 (m, 2H), 7.34 – 7.27 (m, 1H), 7.06 (s, 1H), 5.60 (s, 1H), 2.61 (q, $J = 8.0$ Hz, 2H), 1.21 (t, $J = 8.0$ Hz, 3H).
6	CF_3		(500 MHz, Chloroform-d) δ 7.46 (d, $J = 7.5$ Hz, 2H), 7.11 (d, $J = 7.5$ Hz, 2H), 7.06 (s, 1H), 5.57 (s, 1H), 2.67 (q, $J = 8.0$ Hz, 2H), 1.19 (t, $J = 8.0$ Hz, 3H).
7	CF_3		(500 MHz, Chloroform-d) δ 7.50 – 7.42 (m, 1H), 7.45 – 7.34 (m, 3H), 7.01 (s, 1H), 5.60 (s, 1H), 2.66 (q, $J = 8.0$ Hz, 2H), 1.20 (t, $J = 8.0$ Hz, 3H).
8	CF_3		(500 MHz, Chloroform-d) δ 7.56 (d, $J = 7.5$ Hz, 2H), 7.43 (d, $J = 7.5$ Hz, 2H), 7.00 (s, 1H), 5.77 (s, 1H), 2.94 (hept, $J = 8.0$ Hz, 1H), 1.20 (d, $J = 8.0$ Hz, 6H).
9	CF_3		(500 MHz, Chloroform-d) δ 7.55 – 7.50 (m, 1H), 7.45 – 7.33 (m, 3H), 7.06 (s, 1H), 5.61 (s, 1H), 2.90 (hept, $J = 8.0$ Hz, 1H), 1.24 (d, $J = 8.0$ Hz, 6H).
10	CF_3		(500 MHz, Chloroform-d) δ 7.50 – 7.40 (m, 2H), 7.37 – 7.30 (m, 2H), 7.01 (s, 1H), 5.58 (s, 1H), 3.12 (hept, $J = 8.0$ Hz, 1H), 1.27 (d, $J = 8.0$ Hz, 6H).
11	CF_3		(500 MHz, Chloroform-d) δ 7.56 (d, $J = 7.5$ Hz, 2H), 7.43 (d, $J = 7.5$ Hz, 2H), 7.00 (s, 1H), 5.77 (s, 1H), 2.61 – 2.46 (m, 1H), 1.80 – 1.61 (m, 2H), 1.16 (d, $J = 7.0$ Hz, 3H), 0.76 (t, $J = 8.0$ Hz, 3H).
12	CF_3		(500 MHz, Chloroform-d) δ 7.57 – 7.39 (m, 2H), 7.42 – 7.33 (m, 2H), 7.06 (s, 1H), 5.58 (s, 1H), 2.65 – 2.49 (m, 1H), 1.84 – 1.65 (m, 2H), 1.18 (d, $J = 7.0$ Hz, 3H), 0.79 (t, $J = 8.0$ Hz, 3H).
13	CF_3		(500 MHz, Chloroform-d) δ 7.50 – 7.35 (m, 4H), 7.04 (s, 1H), 5.67 (s, 1H), 2.79 – 2.68 (m, 1H), 1.94 – 1.75 (m, 2H), 1.28 (d, $J = 7.0$ Hz, 3H), 0.83 (t, $J = 8.0$ Hz, 3H).

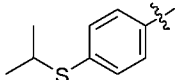
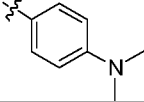
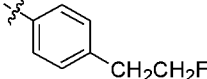
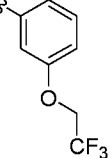
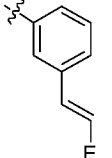
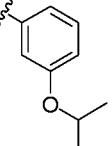
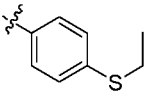
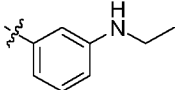
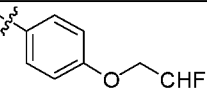
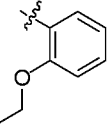
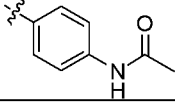
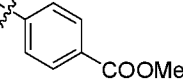
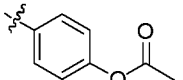
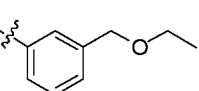
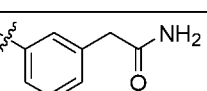
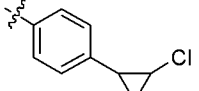
14	CF ₃		(500 MHz, Chloroform-d) δ 7.46 (d, J = 7.5 Hz, 2H), 7.12 (d, J = 7.5 Hz, 2H), 7.06 (s, 1H), 5.56 (s, 1H), 2.59 (t, J = 7.5 Hz, 2H), 1.56 – 1.32 (m, 4H), 0.89 (t, J = 8.0 Hz, 3H).
15	CF ₃		(500 MHz, Chloroform-d) δ 7.47 – 7.33 (m, 3H), 7.34 – 7.28 (m, 1H), 7.06 (s, 1H), 5.59 (s, 1H), 2.61 (t, J = 7.5 Hz, 2H), 1.59 – 1.37 (m, 4H), 0.95 (t, J = 8.0 Hz, 3H).
16	CF ₃		(500 MHz, Chloroform-d) δ 7.49 – 7.37 (m, 4H), 7.01 (s, 1H), 5.62 (s, 1H), 2.58 (t, J = 7.5 Hz, 2H), 1.53 – 1.33 (m, 4H), 0.85 (t, J = 8.0 Hz, 3H).
17	CF ₃		(500 MHz, Chloroform-d) δ 7.54 (d, J = 7.5 Hz, 2H), 7.43 (d, J = 7.5 Hz, 2H), 7.06 (s, 1H), 5.56 (s, 1H), 1.28 (s, 9H).
18	CF ₃		(500 MHz, Chloroform-d) δ 7.60 (dd, J = 2.0, 1.5 Hz, 1H), 7.53 – 7.45 (m, 1H), 7.39 – 7.30 (m, 2H), 7.06 (s, 1H), 5.60 (s, 1H), 1.33 (s, 9H).
19	CF ₃		(500 MHz, Chloroform-d) δ 7.47 (dd, J = 7.0, 2.5 Hz, 1H), 7.40 – 7.31 (m, 2H), 7.29 (dd, J = 6.5, 3.0 Hz, 1H), 7.03 (s, 1H), 5.64 (s, 1H), 1.24 (s, 9H).
20	CF ₃		(500 MHz, Chloroform-d) δ 7.58 – 7.52 (m, 2H), 7.45 – 7.38 (m, 2H), 7.01 (s, 1H), 6.40 – 6.33 (m, 1H), 6.15 – 6.01 (m, 1H), 5.78 (s, 1H), 1.72 (d, J = 6.5 Hz, 3H).
21	CF ₃		(500 MHz, Chloroform-d) δ 7.82 – 7.42 (m, 4H), 7.02 (s, 1H), 6.91 – 6.70 (m, 1H), 5.92 (s, 1H), 5.70 – 5.49 (m, 2H).
22	CF ₃		(500 MHz, Chloroform-d) δ 7.73 (d, J = 7.5 Hz, 2H), 7.67 (d, J = 7.5 Hz, 2H), 7.05 (s, 1H), 5.51 (s, 1H), 1.86 (s, 3H).
23	CF ₃		(500 MHz, Chloroform-d) δ 7.79 (dd, J = 2.0, 1.5 Hz, 1H), 7.57 – 7.35 (m, 3H), 7.06 (s, 1H), 5.53 (s, 1H), 3.14 (s, 1H).
24	CF ₃		(500 MHz, Chloroform-d) δ 7.47 (d, J = 7.5 Hz, 2H), 7.34 (d, J = 7.5 Hz, 2H), 7.06 (s, 1H), 5.53 (s, 1H), 1.93 – 1.84 (m, 1H), 1.20 – 1.11 (m, 2H), 0.92 – 0.83 (m, 2H).
25	CF ₃		(500 MHz, Chloroform-d) δ 7.56 (d, J = 7.5 Hz, 2H), 7.44 (d, J = 7.5 Hz, 2H), 7.00 (s, 1H), 5.76 (s, 1H), 2.60 – 2.51 (m, 1H), 1.94 – 1.81 (m, 8H), 1.81 – 1.71 (m, 2H).
26	CF ₃		(500 MHz, Chloroform-d) δ 7.60 – 7.51 (m, 1H), 7.39 – 7.16 (m, 3H), 7.09 (s, 1H), 5.81 (s, 1H).
27	CF ₃		(500 MHz, Chloroform-d) δ 7.82 – 7.68 (m, 1H), 7.73 (dd, J = 2.0, 1.5 Hz, 1H), 7.42 – 7.37 (m, 2H), 7.07 (s, 1H), 5.51 (s, 1H).
28	CF ₃		(500 MHz, Chloroform-d) δ 7.70 (d, J = 7.5 Hz, 2H), 7.57 (d, J = 7.5 Hz, 2H), 7.00 (s, 1H), 5.78 (s, 1H).

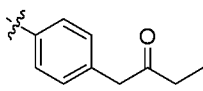
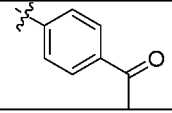
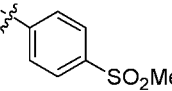
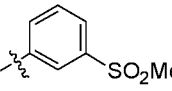
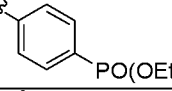
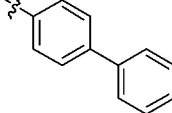
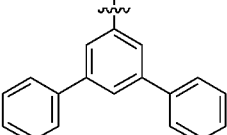
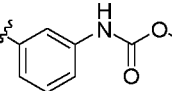
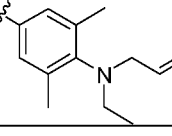
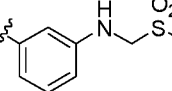
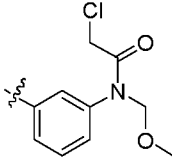
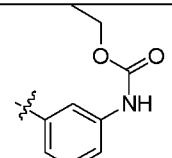
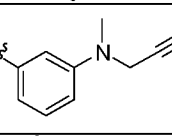
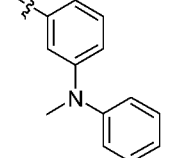
29	CF ₃		(500 MHz, Chloroform-d) δ 7.99 (dd, $J = 2.0, 1.5$ Hz, 1H), 7.83–7.47 (m, 2H), 7.16–7.03 (m, 1H), 7.06 (s, 1H), 5.49 (s, 1H).
30	CF ₃		(500 MHz, Chloroform-d) δ 7.49–7.39 (m, 3H), 7.29–7.17 (m, 1H), 7.04 (s, 1H), 5.94 (s, 1H).
31	CF ₃		(500 MHz, Chloroform-d) δ 7.84 (dd, $J = 2.0, 1.5$ Hz, 1H), 7.64–7.31 (m, 1H), 7.01 (s, 1H), 5.80 (s, 1H).
32	CF ₃		(500 MHz, Chloroform-d) δ 7.44–7.16 (m, 2H), 7.11–6.95 (m, 2H), 7.07 (s, 2H), 5.48 (s, 1H).
33	CF ₃		(500 MHz, Chloroform-d) δ 7.89 (d, $J = 7.5$ Hz, 2H), 7.34 (d, $J = 7.5$ Hz, 2H), 7.06 (s, 1H), 5.47 (s, 1H).
34	CF ₃		(500 MHz, Chloroform-d) δ 7.45–7.38 (m, 2H), 7.30–7.14 (m, 1H), 7.01 (s, 1H), 5.68 (s, 1H).
35	CF ₃		(500 MHz, Chloroform-d) δ 7.41–7.35 (m, 2H), 7.02 (s, 1H), 6.95–6.76 (m, 1H), 5.82 (s, 1H).
36	CF ₃		(500 MHz, Chloroform-d) δ 7.71–7.57 (m, 1H), 7.22–7.06 (m, 2H), 7.11 (s, 1H), 5.20 (s, 1H).
37	CF ₃		(500 MHz, Chloroform-d) δ 7.52–7.44 (m, 3H), 7.04 (s, 1H), 5.94 (s, 1H).
38	CF ₃		(500 MHz, Chloroform-d) δ 7.69 (d, $J = 2.0$ Hz, 1H), 7.35 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.26 (d, $J = 7.5$ Hz, 1H), 7.01 (s, 1H), 5.79 (s, 1H).
39	CF ₃		(500 MHz, Chloroform-d) δ 7.53 (d, $J = 2.0$ Hz, 1H), 7.48 (d, $J = 7.5$ Hz, 1H), 7.33 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.04 (s, 1H), 5.93 (s, 1H).
40	CF ₃		(500 MHz, Chloroform-d) δ 7.71–7.45 (m, 3H), 7.01 (s, 1H), 5.81 (s, 1H).
41	CF ₃		(500 MHz, Chloroform-d) δ 7.48–7.41 (m, 3H), 7.03 (s, 1H), 5.58 (s, 1H).
42	CF ₃		(500 MHz, Chloroform-d) δ 7.70 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.36 (dd, $J = 8.0, 2.0$ Hz, 1H), 7.28 (dd, $J = 8.0, 7.5$ Hz, 1H), 7.04 (s, 1H), 5.92 (s, 1H).
43	CF ₃		(500 MHz, Chloroform-d) δ 7.54–7.40 (m, 2H), 7.15–7.09 (m, 1H), 7.11 (s, 1H), 5.61 (s, 1H).
44	CF ₃		(500 MHz, Chloroform-d) δ 7.48–7.40 (m, 2H), 7.06–6.99 (m, 2H), 5.92 (s, 1H).

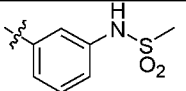
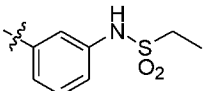
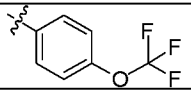
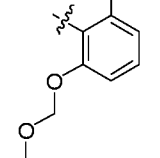
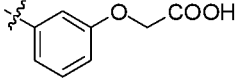
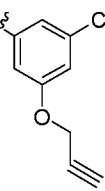
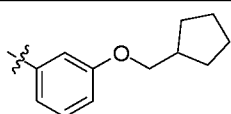
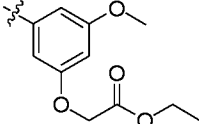
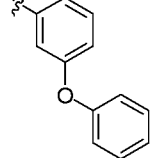
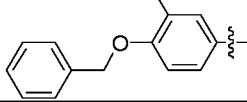
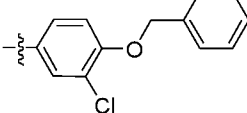
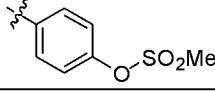
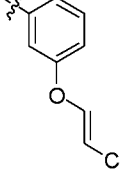
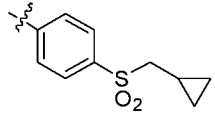
45	CF ₃		(500 MHz, Chloroform-d) δ 7.49 – 7.43 (m, 2H), 7.14 – 7.02 (m, 1H), 7.02 (s, 1H), 5.47 (s, 1H).
46	CF ₃		(500 MHz, Chloroform-d) δ 7.59 – 7.49 (m, 1H), 7.36 – 7.21 (m, 1H), 7.02 (s, 1H), 5.82 (s, 1H).
47	CF ₃		(500 MHz, Chloroform-d) δ 7.41 – 7.18 (m, 3H), 7.04 (s, 1H), 5.51 (s, 1H).
48	CF ₃		(500 MHz, Chloroform-d) δ 7.57 – 7.41 (m, 2H), 7.12 (s, 1H), 7.07 – 6.93 (m, 1H), 5.48 (s, 1H).
49	CF ₃		(500 MHz, Chloroform-d) δ 7.62 – 7.53 (m, 2H), 7.40 – 7.22 (m, 1H), 7.01 (s, 1H), 5.81 (s, 1H).
50	CF ₃		(500 MHz, Chloroform-d) δ 7.83 – 7.58 (m, 2H), 7.25 – 7.11 (m, 1H), 7.02 (s, 1H), 5.52 (s, 1H).
51	CF ₃		(500 MHz, Chloroform-d) δ 7.59 – 7.46 (m, 2H), 7.41 – 7.35 (m, 1H), 7.01 (s, 1H), 5.68 (s, 1H).
52	CF ₃		(500 MHz, Chloroform-d) δ 7.00 (s, 1H), 6.75 – 6.52 (m, 2H), 5.64 (s, 1H).
53	CF ₃		(500 MHz, Chloroform-d) δ 7.28 – 7.20 (m, 2H), 7.02 (s, 1H), 5.84 (s, 1H).
54	CF ₃		(500 MHz, Chloroform-d) δ 7.17 – 7.03 (m, 3H), 6.98 – 6.77 (m, 1H), 4.92 (s, 1H).
55	CF ₃		(500 MHz, Chloroform-d) δ 7.03 (s, 1H), 5.57 (s, 1H).
56	CF ₃		(500 MHz, Chloroform-d) δ 7.34 (dd, J = 9.0, 1.5 Hz, 1H), 7.24 – 7.07 (m, 1H), 7.17 (dd, J = 7.5, 2.5 Hz, 1H), 7.07 (s, 1H), 5.45 (s, 1H), 2.31 (s, 3H).
57	CF ₃		(500 MHz, Chloroform-d) δ 7.48 – 7.42 (m, 1H), 7.25 – 7.10 (m, 2H), 7.02 (s, 1H), 5.46 (s, 1H), 2.50 (s, 3H).
58	CF ₃		(500 MHz, Chloroform-d) δ 7.22 – 7.08 (m, 3H), 7.01 (s, 1H), 5.66 (s, 1H), 2.44 (s, 3H).
59	CF ₃		(500 MHz, Chloroform-d) δ 7.55 – 7.40 (m, 1H), 7.09 (s, 1H), 7.03 – 6.95 (m, 2H), 5.79 (s, 1H), 2.35 (s, 3H).

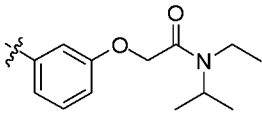
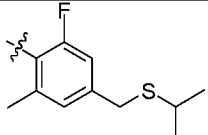
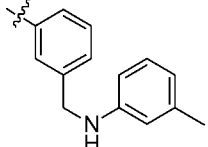
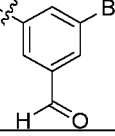
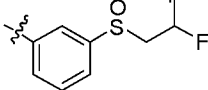
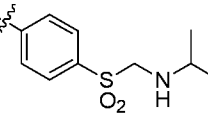
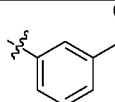
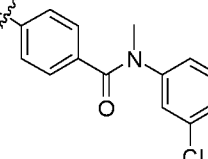
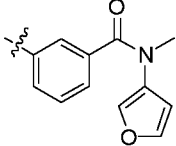
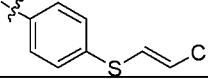
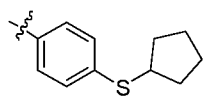
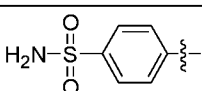
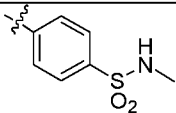
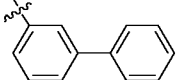
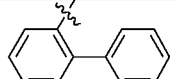
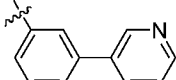
60	CF ₃		(500 MHz, Chloroform-d) δ 8.74 – 8.55 (m, 1H), 7.44 – 7.17 (m, 2H), 7.09 (s, 1H), 5.89 (s, 1H), 3.90 (s, 3H).
61	CF ₃		(500 MHz, Chloroform-d) δ 8.54 (dd, J = 5.5, 2.0 Hz, 1H), 8.27 – 8.03 (m, 1H), 7.44 (dd, J = 10.5, 7.5 Hz, 1H), 7.13 (s, 1H), 5.37 (s, 1H).
62	CF ₃		(500 MHz, Chloroform-d) δ 7.46 – 7.22 (m, 1H), 7.09 – 6.96 (m, 2H), 6.92 – 6.76 (m, 1H), 5.58 (s, 1H), 3.90 (s, 3H).
63	CF ₃		(500 MHz, Chloroform-d) δ 7.74 – 7.64 (m, 2H), 7.39 – 7.22 (m, 2H), 6.51 (s, 1H).
64	CF ₃		(500 MHz, Chloroform-d) δ 7.71 – 7.64 (m, 2H), 7.61 – 7.46 (m, 1H), 7.11 (s, 1H), 5.86 (s, 1H), 5.60 (s, 1H).
65	CF ₃		(500 MHz, Chloroform-d) δ 7.93 – 7.78 (m, 1H), 7.60 – 7.39 (m, 2H), 7.07 (s, 1H), 5.84 (s, 1H), 5.41 (s, 1H).
66	CF ₃		(500 MHz, Chloroform-d) δ 8.27 (dd, J = 5.5, 2.0 Hz, 1H), 7.76 – 7.61 (m, 1H), 7.42 (dd, J = 10.5, 7.5 Hz, 1H), 7.06 (s, 1H), 5.47 (s, 1H).
67	CF ₃		(500 MHz, Chloroform-d) δ 7.73 – 7.56 (m, 1H), 7.51 (dd, J = 11.0, 2.0 Hz, 1H), 7.31 (s, 1H), 7.25 – 7.10 (m, 1H), 6.57 (s, 1H).
68	CF ₃		(500 MHz, Chloroform-d) δ 7.30 – 7.22 (m, 1H), 7.11 – 7.00 (m, 3H), 5.74 (s, 1H), 3.90 (s, 3H).
69	CF ₃		(500 MHz, Chloroform-d) δ 8.42 (d, J = 2.0 Hz, 1H), 8.19 (dd, J = 7.5, 2.0 Hz, 1H), 7.76 (d, J = 7.5 Hz, 1H), 7.06 (s, 1H), 5.75 (s, 1H).
70	CF ₃		(500 MHz, Chloroform-d) δ 7.54 (d, J = 7.5 Hz, 1H), 7.15 (d, J = 2.0 Hz, 1H), 7.00 (s, 1H), 6.90 (dd, J = 7.5, 2.0 Hz, 1H), 5.62 (s, 1H), 3.87 (s, 3H).
71	CF ₃		(500 MHz, Chloroform-d) δ 7.39 – 7.32 (m, 2H), 7.21 (dd, J = 7.5, 2.0 Hz, 1H), 7.04 (s, 1H), 5.66 (s, 1H), 2.34 (s, 3H).
72	CF ₃		(500 MHz, Chloroform-d) δ 7.48 – 7.42 (m, 2H), 7.25 (dd, J = 7.5, 2.0 Hz, 1H), 7.07 (s, 1H), 5.47 (s, 1H), 2.32 (s, 3H).
73	CF ₃		(500 MHz, Chloroform-d) δ 7.60 (d, J = 7.5 Hz, 1H), 7.07 (d, J = 2.0 Hz, 1H), 7.00 (s, 1H), 6.84 (dd, J = 7.5, 2.0 Hz, 1H), 5.63 (s, 1H), 3.81 (s, 3H).
74	CF ₃		(500 MHz, Chloroform-d) δ 7.60 (dd, J = 2.0, 1.5 Hz, 1H), 7.38 – 7.28 (m, 2H), 7.07 (s, 1H), 5.47 (s, 1H), 2.34 (s, 3H).
75	CF ₃		(500 MHz, Chloroform-d) δ 7.50 (d, J = 2.0 Hz, 1H), 7.29 (dd, J = 7.5, 2.0 Hz, 1H), 7.23 (d, J = 7.5 Hz, 1H), 7.07 (s, 1H), 5.48 (s, 1H), 2.28 (s, 3H).
76	CF ₃		(500 MHz, Chloroform-d) δ 7.38 (d, J = 7.5 Hz, 1H), 7.00 (s, 1H), 6.88 – 6.80 (m, 2H), 5.61 (s, 1H), 3.71 (s, 3H), 2.34 (s, 3H).
77	CF ₃		(500 MHz, Chloroform-d) δ 7.37 (d, J = 7.5 Hz, 1H), 7.10 – 7.02 (m, 2H), 7.04 (s, 1H), 5.68 (s, 1H), 2.36 – 2.29 (m, 6H).

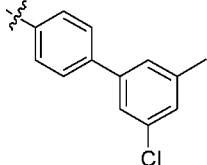
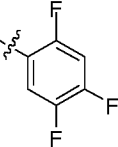
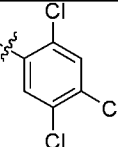
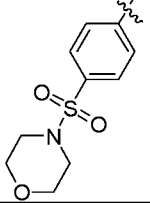
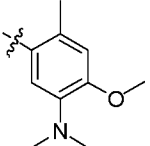
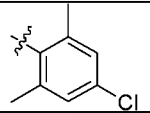
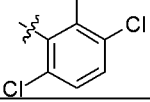
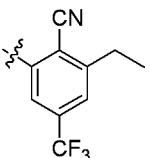
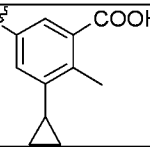
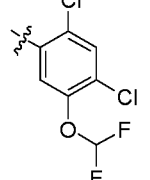
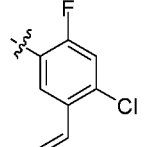
78	CF ₃		(500 MHz, Chloroform-d) δ 7.33 – 7.16 (m, 3H), 7.03 (s, 1H), 5.60 (s, 1H), 2.30 (s, 6H).
79	CF ₃		(500 MHz, Chloroform-d) δ 7.52 – 7.38 (m, 3H), 7.01 (s, 1H), 5.78 (s, 1H), 1.33 (s, 6H).
80	CF ₃		(500 MHz, Chloroform-d) δ 8.97 (s, 1H), 7.09 (s, 1H), 7.03 – 6.95 (m, 2H), 3.82 (s, 3H), 3.76 (s, 3H), 3.72 (s, 3H).
81	CF ₃		(500 MHz, Chloroform-d) δ 7.02 – 6.91 (m, 3H), 5.63 (s, 1H), 4.34 (q, J = 8.0 Hz, 2H), 1.61 (t, J = 8.0 Hz, 3H).
82	CF ₃		(500 MHz, Chloroform-d) δ 7.25 (d, J = 7.5 Hz, 1H), 7.20 – 7.13 (m, 1H), 7.00 (s, 1H), 5.60 (s, 1H), 2.30 (s, 3H).
83	CF ₃		(500 MHz, Chloroform-d) δ 7.57 (d, J = 7.5 Hz, 2H), 7.09 (d, J = 7.5 Hz, 2H), 7.00 (s, 1H), 5.76 (s, 1H), 3.99 (t, J = 7.5 Hz, 2H), 1.75 – 1.61 (m, 2H), 1.14 (t, J = 8.0 Hz, 3H).
84	CF ₃		(500 MHz, Chloroform-d) δ 7.57 – 7.50 (m, 2H), 7.09 – 7.03 (m, 2H), 7.00 (s, 1H), 5.76 (s, 1H).
85	CF ₃		(500 MHz, Chloroform-d) δ 7.47 – 7.41 (m, 2H), 7.41 – 7.35 (m, 2H), 7.06 (s, 1H).
86	CF ₃		(500 MHz, Chloroform-d) δ 7.19 (dd, J = 8.0, 7.5 Hz, 1H), 7.13 – 7.02 (m, 3H), 6.93 – 6.78 (m, 1H).
87	CF ₃		(500 MHz, Chloroform-d) δ 7.38 (d, J = 7.5 Hz, 2H), 7.06 (s, 1H), 6.84 (d, J = 7.5 Hz, 2H), 5.57 (s, 1H), 4.92 (s, 1H).
88	CF ₃		(500 MHz, Chloroform-d) δ 7.15 – 7.01 (m, 2H), 7.03 – 6.97 (m, 1H), 6.72 – 6.57 (m, 2H), 5.77 (s, 1H), 4.14 (s, 2H).
89	CF ₃		(500 MHz, Chloroform-d) δ 8.28 (d, J = 7.5 Hz, 2H), 7.87 (d, J = 7.5 Hz, 2H), 7.02 (s, 1H), 5.84 (s, 1H).
90	CF ₃		(500 MHz, Chloroform-d) δ 8.28 – 8.22 (m, 2H), 7.87 – 7.80 (m, 2H), 7.02 (s, 1H), 5.84 (s, 1H).
91	CF ₃		(500 MHz, Chloroform-d) δ 8.02 (d, J = 7.5 Hz, 2H), 7.77 (d, J = 7.5 Hz, 2H), 7.02 (s, 1H), 5.82 (s, 1H).
92	CF ₃		(500 MHz, Chloroform-d) δ 7.99 – 7.91 (m, 2H), 7.75 – 7.60 (m, 2H), 7.07 (s, 1H), 5.52 (s, 1H).
93	CF ₃		(500 MHz, Chloroform-d) δ 7.48 (d, J = 7.5 Hz, 2H), 7.06 (s, 1H), 6.80 (d, J = 7.5 Hz, 2H), 5.56 (s, 1H), 3.80 (s, 3H).
94	CF ₃		(500 MHz, Chloroform-d) δ 7.66 – 7.40 (m, 4H), 7.08 (s, 1H), 5.87 (s, 1H), 3.90 (s, 3H).
95	CF ₃		(500 MHz, Chloroform-d) δ 7.68 (dd, J = 2.0, 1.5 Hz, 1H), 7.46 – 7.35 (m, 3H), 7.01 (s, 1H), 5.80 (s, 1H),

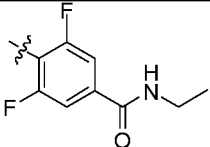
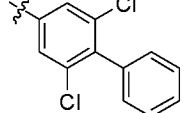
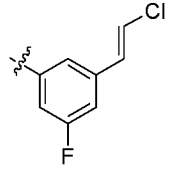
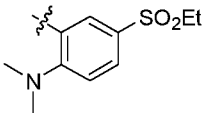
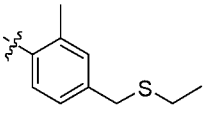
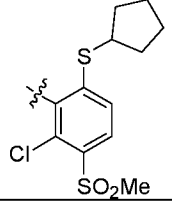
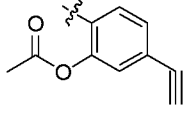
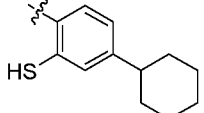
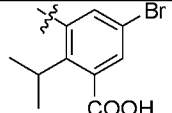
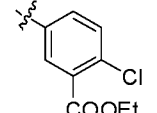
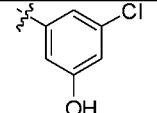
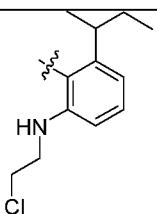
			2.50 (s, 3H).
96	CF ₃		(500 MHz, Chloroform-d) δ 7.61 (d, J = 7.5 Hz, 2H), 7.44 (d, J = 7.5 Hz, 2H), 7.01 (s, 1H), 5.77 (s, 1H), 3.25 (hept, J = 7.0 Hz, 1H), 1.40 (d, J = 7.0 Hz, 6H).
97	CF ₃		(500 MHz, Chloroform-d) δ 7.59 (d, J = 7.5 Hz, 2H), 7.05 (s, 1H), 6.70 (d, J = 7.5 Hz, 2H), 5.56 (s, 1H), 3.02 (s, 6H).
98	CF ₃		(500 MHz, Chloroform-d) δ 7.49 (d, J = 7.5 Hz, 2H), 7.16 (d, J = 7.5 Hz, 2H), 7.07 (s, 1H), 5.53 (s, 1H), 4.47 – 4.37 (m, 2H), 2.76 – 2.69 (m, 2H).
99	CF ₃		(500 MHz, Chloroform-d) δ 7.33 – 7.25 (m, 2H), 7.20 – 6.96 (m, 2H), 5.61 (s, 1H), 4.46 (q, J = 9.5 Hz, 2H).
100	CF ₃		
101	CF ₃		(500 MHz, Chloroform-d) δ 7.35 – 7.23 (m, 3H), 7.02 – 6.94 (m, 2H), 5.76 (s, 1H), 4.41 (hept, J = 7.0 Hz, 1H), 1.29 (d, J = 7.0 Hz, 6H).
102	CF ₃		(500 MHz, Chloroform-d) δ 7.53 (d, J = 7.0 Hz, 2H), 7.41 (d, J = 7.0 Hz, 2H), 7.06 (s, 1H), 5.54 (s, 1H), 2.83 (q, J = 8.0 Hz, 2H), 1.38 (t, J = 8.0 Hz, 3H).
103	CF ₃		(500 MHz, Chloroform-d) δ 7.19 (dd, J = 7.5, 7.0 Hz, 1H), 7.06 (s, 1H), 6.92 – 6.70 (m, 2H), 6.63 (dd, J = 2.0, 1.5 Hz, 1H), 5.62 (s, 1H), 4.09 (s, 1H), 3.36 (q, J = 8.0 Hz, 2H), 1.23 (t, J = 8.0 Hz, 3H).
104	CF ₃		(500 MHz, Chloroform-d) δ 7.49 (d, J = 7.0 Hz, 2H), 7.19 – 7.03 (m, 3H), 5.47 (s, 1H), 5.14 – 4.91 (m, 1H), 4.04 – 3.91 (m, 2H).
105	CF ₃		(500 MHz, Chloroform-d) δ 8.85 (s, 1H), 7.58 (dd, J = 7.5, 2.0 Hz, 1H), 7.40 – 7.18 (m, 2H), 7.11 (dd, J = 7.0, 2.0 Hz, 1H), 7.08 (s, 1H), 4.38 (q, J = 8.0 Hz, 2H), 1.45 (t, J = 8.0 Hz, 3H).
106	CF ₃		(500 MHz, Chloroform-d) δ 7.96 (d, J = 8.0 Hz, 2H), 7.73 (s, 1H), 7.69 (d, J = 8.0 Hz, 2H), 7.01 (s, 1H), 5.78 (s, 1H), 2.10 (s, 3H).
107	CF ₃		(500 MHz, Chloroform-d) δ 8.08 (d, J = 7.0 Hz, 2H), 7.61 (d, J = 7.0 Hz, 2H), 7.07 (s, 1H), 5.49 (s, 1H), 3.95 (s, 3H).
108	CF ₃		(500 MHz, Chloroform-d) δ 7.51 (d, J = 7.5 Hz, 2H), 7.06 (d, J = 7.5 Hz, 2H), 7.00 (s, 1H), 5.61 (s, 1H), 2.29 (s, 3H).
109	CF ₃		(500 MHz, Chloroform-d) δ 7.71 (dd, J = 2.0, 1.5 Hz, 1H), 7.62 – 7.55 (m, 2H), 7.43 (dd, J = 8.0, 7.5 Hz, 1H), 7.01 (s, 1H), 5.77 (s, 1H), 4.47 (s, 2H), 3.58 (q, J = 8.0 Hz, 2H), 1.18 (t, J = 8.0 Hz, 3H).
110	CF ₃		(500 MHz, Chloroform-d) δ 7.84 (dd, J = 2.5, 1.5 Hz, 1H), 7.47 – 7.38 (m, 3H), 7.01 (s, 1H), 5.84 (s, 1H), 5.69 (s, 2H), 3.52 (s, 2H).
111	CF ₃		(500 MHz, Chloroform-d) δ 7.49 (d, J = 7.5 Hz, 2H), 7.39 (d, J = 7.5 Hz, 2H), 7.06 (s, 1H), 5.54 (s, 1H), 3.48 – 3.33 (m, 1H), 2.43 – 2.29 (m, 1H), 1.51 – 1.33

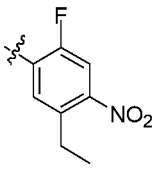
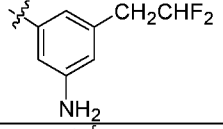
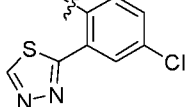
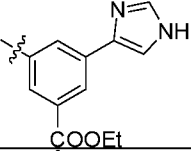
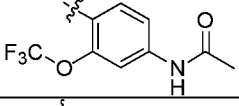
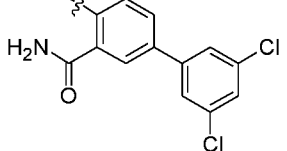
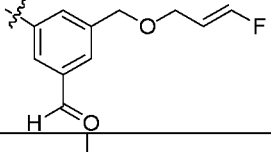
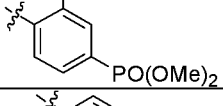
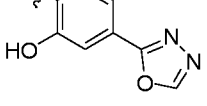
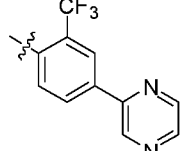
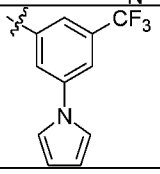
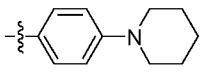
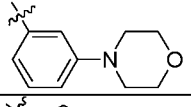
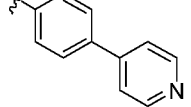
			(m, 1H).
112	CF ₃		(500 MHz, Chloroform-d) δ 7.58 (d, <i>J</i> = 7.5 Hz, 2H), 7.51 (d, <i>J</i> = 7.5 Hz, 2H), 7.06 (s, 1H), 5.53 (s, 1H), 3.71 (s, 2H), 2.47 (q, <i>J</i> = 8.0 Hz, 2H), 1.16 (t, <i>J</i> = 8.0 Hz, 3H).
113	CF ₃		(500 MHz, Chloroform-d) δ 7.99 (d, <i>J</i> = 7.5 Hz, 2H), 7.61 (d, <i>J</i> = 7.5 Hz, 2H), 7.07 (s, 1H), 5.58 (s, 1H), 2.51 (s, 3H).
114	CF ₃		(500 MHz, Chloroform-d) δ 7.98 (d, <i>J</i> = 7.5 Hz, 2H), 7.85 (d, <i>J</i> = 7.5 Hz, 2H), 7.07 (s, 1H), 5.53 (s, 1H), 3.30 (s, 3H).
115	CF ₃		(500 MHz, Chloroform-d) δ 8.19 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 8.04 – 7.80 (m, 2H), 7.66 (dd, <i>J</i> = 8.0, 7.5 Hz, 1H), 7.07 (s, 1H), 5.43 (s, 1H), 3.25 (s, 3H).
116	CF ₃		(500 MHz, Chloroform-d) δ 7.95 (d, <i>J</i> = 7.5 Hz, 2H), 7.71 (d, <i>J</i> = 7.5 Hz, 2H), 7.07 (s, 1H), 5.53 (s, 1H), 4.07 (q, <i>J</i> = 6.5 Hz, 4H), 1.17 (t, <i>J</i> = 6.5 Hz, 6H).
117	CF ₃		(500 MHz, Chloroform-d) δ 7.86 – 7.79 (m, 4H), 7.62 – 7.56 (m, 2H), 7.37 – 7.29 (m, 3H), 7.07 (s, 1H), 5.62 (s, 1H).
118	CF ₃		(500 MHz, Chloroform-d) δ 8.09 – 7.96 (m, 3H), 7.62 – 7.56 (m, 4H), 7.44 – 7.28 (m, 4H), 7.37 – 7.29 (m, 2H), 7.02 (s, 1H), 5.84 (s, 1H).
119	CF ₃		(500 MHz, Chloroform-d) δ 7.49 – 7.38 (m, 3H), 7.28 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 7.02 (s, 1H), 6.56 (s, 1H), 5.87 (s, 1H), 3.67 (s, 3H).
120	CF ₃		(500 MHz, Chloroform-d) δ 7.29 (s, 2H), 7.00 (s, 1H), 6.00 – 5.88 (m, 1H), 5.77 (s, 1H), 5.30 – 5.21 (m, 1H), 5.15 – 5.04 (m, 1H), 4.05 – 3.99 (m, 2H), 3.29 (q, <i>J</i> = 8.0 Hz, 2H), 2.27 (s, 6H), 1.09 (t, <i>J</i> = 8.0 Hz, 3H).
121	CF ₃		(500 MHz, Chloroform-d) δ 7.23 (dd, <i>J</i> = 7.5, 7.0 Hz, 1H), 7.17 – 7.11 (m, 1H), 7.07 (s, 1H), 6.92 – 6.81 (m, 1H), 6.69 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 5.54 (s, 1H), 5.18 (s, 2H), 4.22 (s, 1H), 2.97 (s, 3H).
122	CF ₃		(500 MHz, Chloroform-d) δ 7.56 – 7.37 (m, 3H), 7.20 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 7.02 (s, 1H), 5.84 (s, 1H), 5.46 (s, 2H), 3.68 (s, 2H), 3.20 (s, 3H).
123	CF ₃		(500 MHz, Chloroform-d) δ 7.42 – 7.14 (m, 4H), 7.06 (s, 1H), 6.56 (s, 1H), 5.97 (s, 1H), 4.15 (q, <i>J</i> = 8.0 Hz, 2H), 1.26 (t, <i>J</i> = 8.1 Hz, 3H).
124	CF ₃		(500 MHz, Chloroform-d) δ 7.17 (dd, <i>J</i> = 7.5, 7.0 Hz, 1H), 7.05 (s, 1H), 6.94 – 6.88 (m, 2H), 6.63 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 5.61 (s, 1H), 4.09 (s, 2H), 3.00 (s, 3H), 2.76 (s, 1H).
125	CF ₃		(500 MHz, Chloroform-d) δ 7.36 – 7.29 (m, 1H), 7.25 – 7.17 (m, 5H), 7.10 – 7.03 (m, 1H), 7.00 (s, 1H), 6.87 – 6.80 (m, 2H), 5.74 (s, 1H), 3.35 (s, 3H).

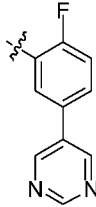
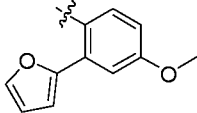
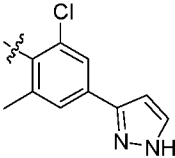
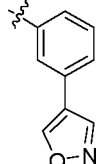
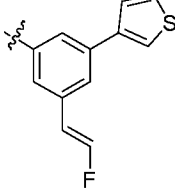
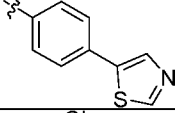
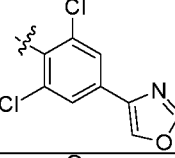
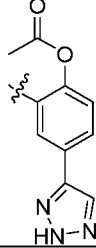
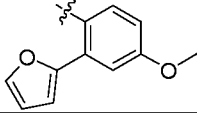
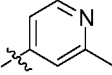
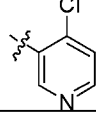
126	CF ₃		(500 MHz, Chloroform-d) δ 7.40 – 7.23 (m, 3H), 7.05 (s, 1H), 6.52 (dd, J = 2.0, 1.5 Hz, 1H), 6.39 (s, 1H), 6.01 (s, 1H), 2.99 (s, 3H).
127	CF ₃		(500 MHz, Chloroform-d) δ 7.20 – 7.21 (m, 3H), 7.08 (s, 1H), 6.55 (dd, J = 2.0, 1.5 Hz, 1H), 6.38 (s, 1H), 6.05 (s, 1H), 3.45 (q, J = 8.0 Hz, 2H), 1.59 (t, J = 8.0 Hz, 3H).
128	CF ₃		(500 MHz, Chloroform-d) δ 7.59 (d, J = 7.5 Hz, 2H), 7.27 (d, J = 7.5 Hz, 2H), 7.00 (s, 1H), 5.78 (s, 1H).
129	CF ₃		(500 MHz, Chloroform-d) δ 7.38 (dd, J = 7.5, 7.0 Hz, 1H), 7.13 (dd, J = 7.5, 2.0 Hz, 1H), 7.09 (s, 1H), 7.07 (dd, J = 7.0, 2.0 Hz, 1H), 6.02 (s, 1H), 5.77 (s, 2H), 3.13 (s, 3H), 2.33 (s, 3H).
130	CF ₃		(500 MHz, Chloroform-d) δ 7.42 – 7.37 (m, 1H), 7.33 – 7.24 (m, 2H), 7.01 (s, 1H), 7.04 – 6.97 (m, 1H), 5.81 (s, 1H), 4.71 (s, 2H).
131	CF ₃		(500 MHz, Chloroform-d) δ 7.41 (dd, J = 2.0, 1.5 Hz, 1H), 7.11 (dd, J = 2.5, 2.0 Hz, 1H), 7.06 (d, J = 2.5, 1.5 Hz, 1H), 7.00 (s, 1H), 5.48 (s, 1H), 4.68 (s, 2H), 3.00 (s, 1H).
132	CF ₃		(500 MHz, Chloroform-d) δ 7.33 – 7.23 (m, 3H), 7.03 – 6.96 (m, 2H), 5.77 (s, 1H), 3.92 (d, J = 6.5 Hz, 2H), 1.84 – 1.73 (m, 2H), 1.77 – 1.61 (m, 3H), 1.65 – 1.51 (m, 2H), 1.25 – 1.14 (m, 2H).
133	CF ₃		(500 MHz, Chloroform-d) δ 7.07 – 6.99 (m, 4H), 6.47 (dd, J = 2.0, 1.5 Hz, 1H), 5.77 (s, 1H), 4.99 (s, 2H), 4.21 (q, J = 8.0 Hz, 2H), 3.85 (s, 3H), 1.22 (t, J = 8.0 Hz, 3H).
134	CF ₃		(500 MHz, Chloroform-d) δ 7.38 – 7.30 (m, 4H), 7.20 – 7.08 (m, 3H), 7.05 – 6.96 (m, 3H), 5.54 (s, 1H).
135	CF ₃		(500 MHz, Chloroform-d) δ 7.44 – 7.27 (m, 8H), 7.07 (s, 1H), 5.54 (s, 1H), 5.12 (s, 2H), 2.24 (s, 3H).
136	CF ₃		(500 MHz, Chloroform-d) δ 7.66 (d, J = 2.0 Hz, 1H), 7.49 – 7.27 (m, 6H), 7.17 (d, J = 7.5 Hz, 1H), 7.01 (s, 1H), 5.81 (s, 1H), 5.11 (s, 2H).
137	CF ₃		(500 MHz, Chloroform-d) δ 7.56 (d, J = 7.0 Hz, 2H), 7.50 (d, J = 7.0 Hz, 2H), 7.06 (s, 1H), 5.56 (s, 1H), 3.53 (s, 3H).
138	CF ₃		
139	CF ₃		(500 MHz, Chloroform-d) δ 8.03 (d, J = 7.5 Hz, 2H), 7.91 (d, J = 7.5 Hz, 2H), 7.01 (s, 1H), 5.79 (s, 1H), 3.51 (d, J = 7.0 Hz, 2H), 1.41 – 1.31 (m, 1H), 0.51 – 0.39 (m, 2H), 0.36 – 0.26 (m, 2H).

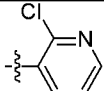
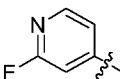
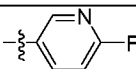
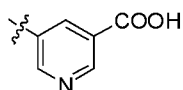
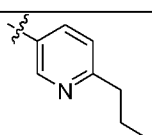
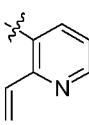
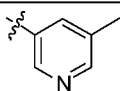
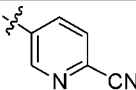
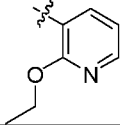
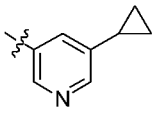
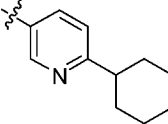
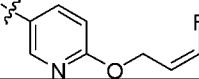
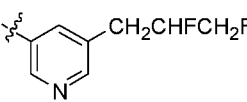
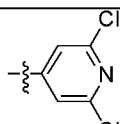
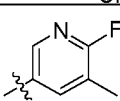
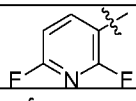
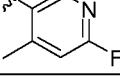
140	CF ₃		(500 MHz, Chloroform-d) δ 7.33 – 7.23 (m, 3H), 7.08 – 7.00 (m, 2H), 5.60 (s, 1H), 4.88 (s, 2H), 4.02 (hept, J = 7.0 Hz, 1H), 3.72 (q, J = 8.0 Hz, 2H), 1.29 (d, J = 7.0 Hz, 6H), 1.23 (t, J = 8.0 Hz, 3H).
141	CF ₃		(500 MHz, Chloroform-d) δ 7.04 (s, 1H), 6.97 – 6.88 (m, 2H), 5.73 (s, 1H), 3.70 (s, 2H), 2.87 (hept, J = 6.5 Hz, 1H), 2.36 (s, 3H), 1.39 (d, J = 6.5 Hz, 6H).
142	CF ₃		(500 MHz, Chloroform-d) δ 7.52 – 7.44 (m, 2H), 7.48 – 7.40 (m, 2H), 7.07 (s, 1H), 6.57 – 6.48 (m, 2H), 6.40 – 6.34 (m, 2H), 5.63 (s, 1H), 4.43 (s, 1H), 4.32 (s, 2H), 2.19 (s, 3H).
143	CF ₃		(500 MHz, Chloroform-d) δ 8.12 – 8.04 (m, 3H), 7.02 (s, 1H), 5.83 (s, 1H).
144	CF ₃		(500 MHz, Chloroform-d) δ 8.04 (dd, J = 2.0, 1.5 Hz, 1H), 7.60 – 7.49 (m, 3H), 7.04 (s, 1H), 6.49 – 6.21 (m, 1H), 5.73 (s, 1H), 3.14 – 3.05 (m, 2H).
145	CF ₃		(500 MHz, Chloroform-d) δ 7.99 (d, J = 7.5 Hz, 2H), 7.91 (d, J = 7.5 Hz, 2H), 7.01 (s, 1H), 5.80 (s, 1H), 4.67 (s, 2H), 2.92 (hept, J = 6.5 Hz, 1H), 1.20 – 1.15 (m, 7H).
146	CF ₃		
147	CF ₃		(500 MHz, Chloroform-d) δ 8.20 – 8.08 (m, 1H), 7.89 (d, J = 7.5 Hz, 2H), 7.76 (d, J = 7.5 Hz, 2H), 7.49 (dd, J = 7.5, 7.0 Hz, 1H), 7.25 – 7.14 (m, 2H), 7.05 (s, 1H), 5.63 (s, 1H), 3.40 (s, 3H).
148	CF ₃		(500 MHz, Chloroform-d) δ 8.18 (dd, J = 2.0, 1.5 Hz, 1H), 7.82 – 7.77 (m, 2H), 7.65 – 7.54 (m, 2H), 7.01 (s, 1H), 6.87 (d, J = 1.5 Hz, 1H), 6.48 (d, J = 1.5 Hz, 1H), 5.82 (s, 1H), 3.25 (s, 3H).
149	CF ₃		
150	CF ₃		(500 MHz, Chloroform-d) δ 7.52 (d, J = 7.5 Hz, 2H), 7.46 (d, J = 7.5 Hz, 2H), 7.06 (s, 1H), 5.52 (s, 1H), 3.24 – 3.16 (m, 1H), 2.13 – 2.01 (m, 2H), 1.75 – 1.63 (m, 4H), 1.55 – 1.38 (m, 2H).
151	CF ₃		(500 MHz, Chloroform-d) δ 8.06 (d, J = 7.5 Hz, 2H), 7.79 (d, J = 7.5 Hz, 2H), 7.07 (s, 1H), 5.46 (s, 1H), 4.40 (s, 2H).
152	CF ₃		(500 MHz, Chloroform-d) δ 8.06 (d, J = 7.5 Hz, 2H), 7.87 (d, J = 7.5 Hz, 2H), 7.01 (s, 1H), 5.80 (s, 1H), 4.45 (s, 1H), 2.53 (s, 3H).
153	CF ₃		(500 MHz, Chloroform-d) δ 7.90 – 7.78 (m, 2H), 7.67 – 7.56 (m, 4H), 7.37 – 7.29 (m, 3H), 7.06 (s, 1H), 5.66 (s, 1H).
154	CF ₃		(500 MHz, Chloroform-d) δ 7.68 – 7.50 (m, 6H), 7.37 – 7.29 (m, 3H), 6.94 (s, 1H), 5.70 (s, 1H).
155	CF ₃		(500 MHz, Chloroform-d) δ 8.73 (d, J = 1.5 Hz, 1H), 8.63 (dd, J = 5.0, 1.0 Hz, 1H), 7.94 – 7.81 (m, 2H),

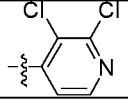
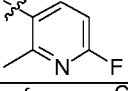
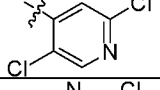
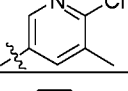
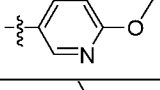
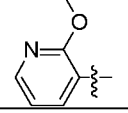
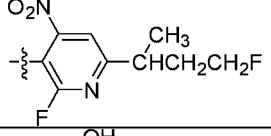
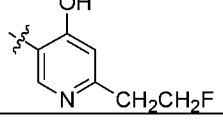
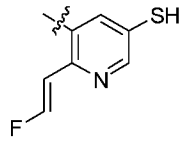
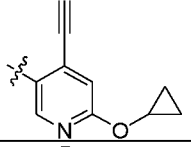
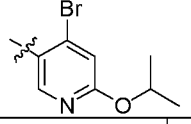
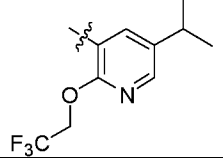
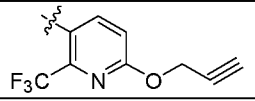
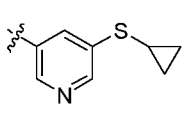
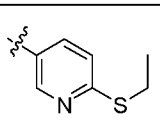
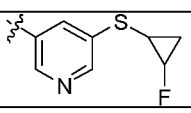
			7.65 – 7.56 (m, 3H), 7.38 – 7.29 (m, 1H), 7.07 (s, 1H), 5.62 (s, 1H).
156	CF ₃		(500 MHz, Chloroform-d) δ 7.87 – 7.55 (m, 5H), 7.42 – 7.37 (m, 2H), 7.08 (s, 1H), 5.60 (s, 1H), 2.35 (s, 3H).
157	CF ₃		
158	CF ₃		
159	CF ₃		(500 MHz, Chloroform-d) δ 8.09 (d, <i>J</i> = 7.5 Hz, 2H), 7.87 (d, <i>J</i> = 7.5 Hz, 2H), 7.01 (s, 1H), 5.80 (s, 1H), 3.64 – 3.51 (m, 4H), 2.96 – 2.83 (m, 4H).
160	CF ₃		(500 MHz, Chloroform-d) δ 7.04 (s, 1H), 6.84 (s, 1H), 6.68 (s, 1H), 5.70 (s, 1H), 3.94 (s, 3H), 2.94 (s, 6H), 2.30 (s, 3H).
161	CF ₃		(500 MHz, Chloroform-d) δ 7.20 (s, 2H), 7.01 (s, 1H), 5.56 (s, 1H), 2.32 (s, 6H).
162	CF ₃		(500 MHz, Chloroform-d) δ 7.42 (d, <i>J</i> = 7.5 Hz, 1H), 7.36 (d, <i>J</i> = 7.5 Hz, 1H), 7.01 (s, 1H), 5.62 (s, 1H), 2.32 (s, 3H).
163	CF ₃		(500 MHz, Chloroform-d) δ 7.83 (d, <i>J</i> = 2.5 Hz, 1H), 7.66 (d, <i>J</i> = 2.5 Hz, 1H), 7.06 (s, 1H), 5.38 (s, 1H), 2.88 (q, <i>J</i> = 8.0 Hz, 2H), 1.27 (t, <i>J</i> = 8.0 Hz, 3H).
164	CF ₃		(500 MHz, Chloroform-d) δ 8.12 (d, <i>J</i> = 2.0 Hz, 1H), 7.63 (d, <i>J</i> = 2.0 Hz, 1H), 7.07 (s, 1H), 5.65 (s, 1H), 2.51 (s, 3H), 1.92 – 1.83 (m, 1H), 1.20 – 1.11 (m, 2H), 0.93 – 0.81 (m, 2H).
165	CF ₃		(500 MHz, Chloroform-d) δ 7.49 (s, 1H), 7.19 (t, <i>J</i> = 73.5 Hz, 1H), 7.07 (s, 1H), 7.01 (s, 1H), 5.64 (s, 1H).
166	CF ₃		(500 MHz, Chloroform-d) δ 7.68 (d, <i>J</i> = 10.5 Hz, 1H), 7.41 (d, <i>J</i> = 6.0 Hz, 1H), 7.13 – 7.09 (m, 2H), 5.58 – 5.29 (m, 3H).

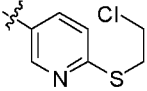
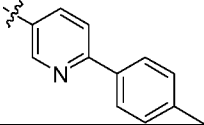
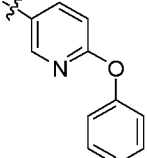
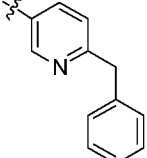
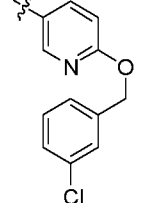
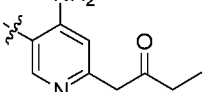
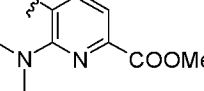
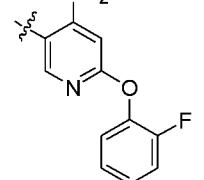
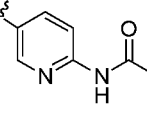
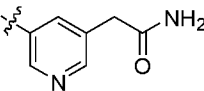
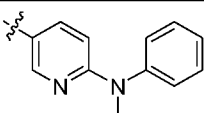
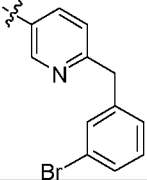
167	CF ₃		(500 MHz, Chloroform-d) δ 7.45 – 7.33 (m, 2H), 7.13 (s, 1H), 6.75 (s, 1H), 5.07 (s, 1H), 3.24 (q, J = 8.0 Hz, 2H), 1.09 (t, J = 8.0 Hz, 3H).
168	CF ₃		(500 MHz, Chloroform-d) δ 7.62 (s, 2H), 7.54 – 7.48 (m, 2H), 7.44 – 7.36 (m, 3H), 7.08 (s, 1H), 5.54 (s, 1H).
169	CF ₃		¹ H NMR (500 MHz, Chloroform-d) δ 7.48 – 7.38 (m, 1H), 7.22 – 7.16 (m, 2H), 7.08 (s, 1H), 6.79 – 6.74 (m, 2H), 5.42 (s, 1H).
170	CF ₃		(500 MHz, Chloroform-d) δ 8.28 (d, J = 2.0 Hz, 1H), 7.93 (s, 1H), 7.79 (dd, J = 7.5, 2.0 Hz, 1H), 7.20 – 7.10 (m, 2H), 3.45 (q, J = 6.8 Hz, 2H), 2.83 (s, 6H), 1.40 (t, J = 6.8 Hz, 3H).
171	CF ₃		(500 MHz, Chloroform-d) δ 7.39 (d, J = 7.5 Hz, 1H), 7.22 – 7.15 (m, 2H), 7.03 (s, 1H), 5.67 (s, 1H), 3.70 (s, 2H), 2.48 (q, J = 8.0 Hz, 2H), 2.30 (s, 3H), 1.24 (t, J = 8.0 Hz, 3H).
172	CF ₃		(500 MHz, Chloroform-d) δ 8.01 (d, J = 7.5 Hz, 1H), 7.58 (d, J = 7.5 Hz, 1H), 7.00 (s, 1H), 5.69 (s, 1H), 3.24 – 3.17 (m, 1H), 3.14 (s, 3H), 2.11 – 2.00 (m, 2H), 1.77 – 1.64 (m, 2H), 1.59 – 1.48 (m, 4H).
173	CF ₃		(500 MHz, Chloroform-d) δ 7.60 (dd, J = 7.5, 2.0 Hz, 1H), 7.54 (d, J = 7.5 Hz, 1H), 7.36 (d, J = 2.0 Hz, 1H), 6.99 (s, 1H), 5.68 (s, 1H), 3.07 (s, 1H), 2.67 (s, 1H).
174	CF ₃		(500 MHz, Chloroform-d) δ 7.50 – 7.40 (m, 2H), 7.26 – 7.11 (m, 1H), 7.03 (s, 1H), 5.66 (s, 1H), 5.34 (s, 1H), 2.61 – 2.51 (m, 1H), 2.19 – 2.10 (m, 2H), 1.82 – 1.71 (m, 4H), 1.54 – 1.34 (m, 4H).
175	CF ₃		(500 MHz, Chloroform-d) δ 8.25 (d, J = 2.0 Hz, 1H), 7.92 (d, J = 2.0 Hz, 1H), 7.02 (s, 1H), 5.64 (s, 1H), 3.12 (hept, J = 6.5 Hz, 1H), 1.30 (d, J = 6.5 Hz, 6H).
176	CF ₃		(500 MHz, Chloroform-d) δ 7.99 (d, J = 1.5 Hz, 1H), 7.66 – 7.43 (m, 2H), 7.01 (s, 1H), 5.80 (s, 1H), 4.19 (q, J = 8.0 Hz, 2H), 1.34 (t, J = 8.0 Hz, 3H).
177	CF ₃		(500 MHz, Chloroform-d) δ 7.35 – 7.29 (m, 2H), 7.06 (s, 1H), 6.96 – 6.89 (m, 1H), 6.57 (s, 1H), 5.62 (s, 1H).
178	CF ₃		(500 MHz, Chloroform-d) δ 7.21 – 7.10 (m, 1H), 7.06 (s, 1H), 6.81 – 6.62 (m, 2H), 5.39 (s, 1H), 4.39 (s, 1H), 3.87 – 3.77 (m, 2H), 3.51 – 3.34 (m, 2H), 2.99 – 2.89 (m, 1H), 1.92 – 1.71 (m, 2H), 1.27 (d, J = 6.5 Hz, 3H), 0.91 (t, J = 8.0 Hz, 3H).

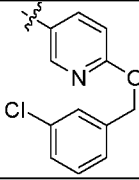
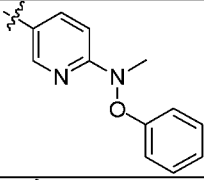
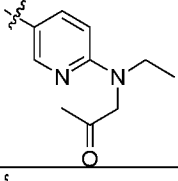
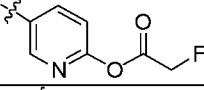
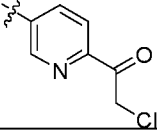
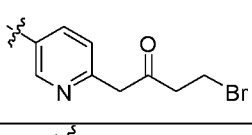
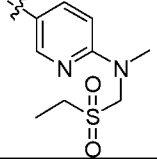
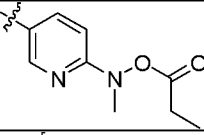
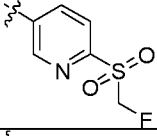
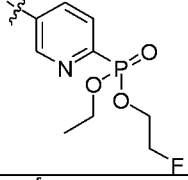
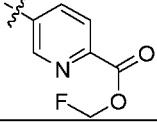
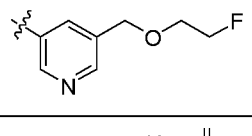
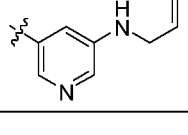
179	CF ₃		(500 MHz, Chloroform-d) δ 8.78 (d, J = 11.0 Hz, 1H), 8.08 (d, J = 6.5 Hz, 1H), 7.12 (s, 1H), 5.49 (s, 1H), 2.66 (q, J = 8.0, Hz, 2H), 1.17 (t, J = 8.0 Hz, 3H).
180	CF ₃		(500 MHz, Chloroform-d) δ 7.10 – 7.01 (m, 3H), 6.64 – 6.56 (m, 3H), 5.83 – 5.76 (m, 1H), 5.79 (s, 1H), 2.91 – 2.76 (m, 2H).
181	CF ₃		(500 MHz, Chloroform-d) δ 7.65 (s, 1H), 7.59 (d, J = 2.0 Hz, 1H), 7.53 (d, J = 7.5 Hz, 1H), 7.45 (dd, J = 7.5, 2.0 Hz, 1H), 7.29 (s, 1H), 6.15 (s, 1H).
182	CF ₃		(500 MHz, Chloroform-d) δ 8.25 – 8.17 (m, 3H), 7.33 (s, 1H), 7.10 (s, 1H), 5.54 – 5.31 (m, 3H), 4.31 (q, J = 7.5 Hz, 2H), 1.34 (t, J = 7.5 Hz, 3H).
183	CF ₃		(500 MHz, Chloroform-d) δ 8.27 (s, 1H), 7.85 (dd, J = 7.5, 2.0 Hz, 1H), 7.62 (d, J = 7.5 Hz, 1H), 7.24 (d, J = 2.0 Hz, 1H), 7.02 (s, 1H), 5.72 (s, 1H), 2.10 (s, 3H).
184	CF ₃		(500 MHz, Chloroform-d) δ 8.33 (d, J = 2.0 Hz, 1H), 7.88 (dd, J = 7.5, 2.0 Hz, 1H), 7.80 (d, J = 7.5 Hz, 1H), 7.57 (d, J = 2.0 Hz, 2H), 7.45 – 7.37 (m, 1H), 7.08 (s, 1H), 6.46 (s, 2H), 5.62 (s, 1H).
185	CF ₃		
186	CF ₃		(500 MHz, Chloroform-d) δ 7.84 – 7.74 (m, 2H), 7.56 (d, J = 7.5 Hz, 1H), 7.04 (s, 1H), 5.63 (s, 1H), 3.39 (s, 6H), 2.34 (s, 3H).
187	CF ₃		(500 MHz, Chloroform-d) δ 8.67 (s, 1H), 7.87 (s, 1H), 7.63 (d, J = 7.5 Hz, 1H), 7.42 (dd, J = 7.5, 2.0 Hz, 1H), 7.16 (d, J = 2.0 Hz, 1H), 7.00 (s, 1H), 5.80 (s, 1H).
188	CF ₃		(500 MHz, Chloroform-d) δ 9.31 (s, 1H), 8.85 (d, J = 5.5 Hz, 1H), 8.75 (d, J = 5.5 Hz, 1H), 8.42 – 8.38 (m, 1H), 8.32 (dd, J = 7.5, 2.0 Hz, 1H), 7.72 (d, J = 7.5 Hz, 1H), 7.06 (s, 1H), 5.55 (s, 1H).
189	CF ₃		(500 MHz, Chloroform-d) δ 8.15 – 8.09 (m, 2H), 7.97 – 7.81 (m, 1H), 7.35 – 7.21 (m, 2H), 7.03 (s, 1H), 6.34 – 6.20 (m, 2H), 5.84 (s, 1H).
190	CF ₃		(500 MHz, Chloroform-d) δ 7.63 (d, J = 7.5 Hz, 2H), 7.06 (s, 1H), 6.94 (d, J = 7.5 Hz, 2H), 5.58 (s, 1H), 3.49 – 3.43 (m, 4H), 1.67 – 1.57 (m, 6H).
191	CF ₃		(500 MHz, Chloroform-d) δ 7.23 – 7.06 (m, 2H), 6.95 – 6.72 (m, 3H), 5.51 (s, 1H), 3.74 – 3.55 (m, 4H), 3.33 – 3.16 (m, 4H).
192	CF ₃		(500 MHz, Chloroform-d) δ 8.69 (d, J = 5.0 Hz, 2H), 7.96 (d, J = 5.0 Hz, 2H), 7.86 – 7.74 (m, 4H), 7.02 (s, 1H), 5.82 (s, 1H).

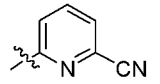
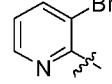
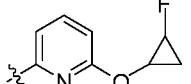
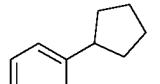
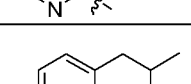
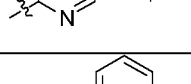
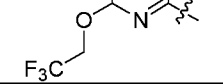
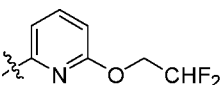
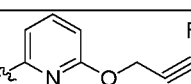
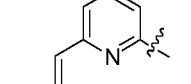
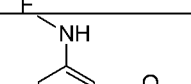
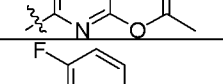
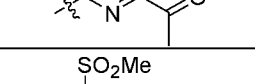
193	CF ₃		(500 MHz, Chloroform-d) δ 9.17 (s, 1H), 9.08 (s, 2H), 7.98 – 7.82 (m, 1H), 7.65 – 7.38 (m, 3H), 7.12 (s, 1H), 5.67 (s, 1H).
194	CF ₃		(500 MHz, Chloroform-d) δ 7.64 – 7.57 (m, 2H), 7.37 (d, J = 2.0 Hz, 1H), 7.06 – 7.00 (m, 2H), 6.68 – 6.54 (m, 2H), 6.14 (s, 1H), 3.87 (s, 3H).
195	CF ₃		(500 MHz, Chloroform-d) δ 7.61 (d, J = 2.0 Hz, 1H), 7.50 (d, J = 2.0 Hz, 1H), 7.30 (d, J = 2.5 Hz, 1H), 7.05 (s, 1H), 6.71 (d, J = 2.5 Hz, 1H), 2.36 (s, 3H).
196	CF ₃		(500 MHz, Chloroform-d) δ 7.78 (s, 1H), 7.47 – 7.41 (m, 2H), 7.32 – 7.25 (m, 2H), 7.09 (s, 1H), 6.34 – 6.23 (m, 1H), 5.60 (s, 1H).
197	CF ₃		
198	CF ₃		(500 MHz, Chloroform-d) δ 8.97 (s, 1H), 7.96 (d, J = 7.5 Hz, 2H), 7.85 (s, 1H), 7.83 (d, J = 7.5 Hz, 2H), 7.02 (s, 1H), 5.82 (s, 1H).
199	CF ₃		(500 MHz, Chloroform-d) δ 8.53 (s, 1H), 8.43 (s, 1H), 7.64 (s, 2H), 7.04 (s, 1H), 5.64 (s, 1H).
200	CF ₃		(500 MHz, Chloroform-d) δ 8.32 (s, 1H), 7.89 (d, J = 2.0 Hz, 1H), 7.64 (dd, J = 7.5, 2.0 Hz, 1H), 7.31 (d, J = 7.5 Hz, 1H), 7.04 (s, 1H), 2.67 (s, 3H).
201	CF ₃		(500 MHz, Chloroform-d) δ 7.64 – 7.57 (m, 2H), 7.37 (d, J = 2.0 Hz, 1H), 7.06 – 6.99 (m, 2H), 6.69 – 6.54 (m, 2H), 6.14 (s, 1H), 3.87 (s, 3H).
202	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.37 (s, 1H), 9.18 (d, J = 2.5 Hz, 1H), 8.68 – 8.56 (m, 2H), 7.56 – 7.41 (m, 1H), 7.28 (s, 1H).
203	CF ₃		(500 MHz, Chloroform-d) δ 8.68 (d, J = 5.0 Hz, 1H), 7.56 – 7.50 (m, 2H), 7.24 (s, 1H), 5.80 (s, 1H), 2.69 (s, 3H).
204	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.66 (s, 1H), 8.79 (s, 1H), 8.55 (d, J = 5.0 Hz, 1H), 7.46 (dd, J = 5.0 Hz, 1H), 7.26 (s, 1H).

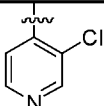
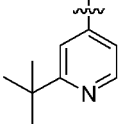
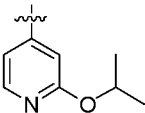
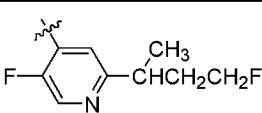
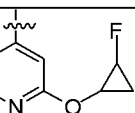
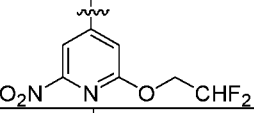
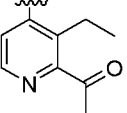
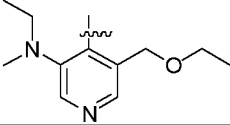
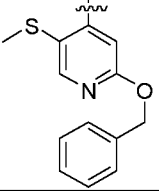
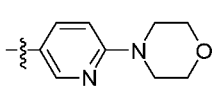
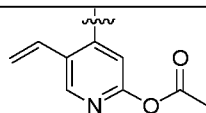
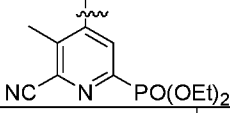
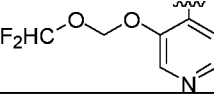
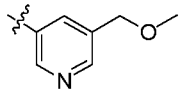
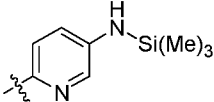
205	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.09 (s, 1H), 8.55 – 8.43 (m 1H), 8.02 – 7.89 (m, 1H), 7.59 – 7.40 (m, 1H), 7.36 (s, 1H).
206	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.45 (dd, <i>J</i> = 5.5, 5.0 Hz, 1H), 7.63 – 7.52 (m, 1H), 7.42 (dd, <i>J</i> = 8.0, 1.0 Hz, 1H), 7.30 (s, 1H), 5.34 (s, 1H).
207	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.65 (s, 1H), 8.80-8.57 (m, 2H), 7.36-7.34 (m, 2H).
208	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 9.20 (d, <i>J</i> = 1.5 Hz, 1H), 9.07 (d, <i>J</i> = 2.0 Hz, 1H), 8.40 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 8.40 (s, 1H), 7.31 (s, 1H), 5.41 (s, 1H).
209	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 9.09 (d, <i>J</i> = 1.5 Hz, 1H), 8.02 (dd, <i>J</i> = 8.0, 1.5 Hz, 1H), 7.47 (d, <i>J</i> = 8.0 Hz, 1H), 7.30 (s, 1H), 5.34 (s, 1H), 3.26 (t, <i>J</i> = 8.0 Hz, 2H), 1.86 – 1.67 (m, 2H), 1.01 (t, <i>J</i> = 8.0 Hz, 3H).
210	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.61 (dd, <i>J</i> = 5.0, 1.5 Hz, 1H), 7.85 (dd, <i>J</i> = 8.0, 1.5 Hz, 1H), 7.49 (dd, <i>J</i> = 8.0, 5.0 Hz, 1H), 7.25 (s, 1H), 6.72 (dd, <i>J</i> = 16.5, 10.0 Hz, 1H), 6.19 (dd, <i>J</i> = 13.5, 10.0 Hz, 1H), 5.67 (dd, <i>J</i> = 16.5, 13.5 Hz, 1H), 5.60 (s, 1H).
211	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.41 (s, 1H), 8.97 (s, 1H), 8.52 (s, 1H), 8.20 (s, 1H), 7.29 (s, 1H), 2.38 (s, 3H).
212	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 9.18 (d, <i>J</i> = 1.5 Hz, 1H), 8.24 (dd, <i>J</i> = 8.0, 1.5 Hz, 1H), 8.02 (d, <i>J</i> = 8.0 Hz, 1H), 7.32 (s, 1H), 5.20 (s, 1H).
213	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.45 (s, 1H), 8.32 (dd, <i>J</i> = 5.0, 1.5 Hz, 1H), 7.79 (dd, <i>J</i> = 6.5, 1.5 Hz, 1H), 7.36 (s, 1H), 7.11 (dd, <i>J</i> = 6.5, 5.0 Hz, 1H), 4.32 (q, <i>J</i> = 7.0 Hz, 2H), 1.19 (t, <i>J</i> = 7.0 Hz, 3H).
214	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.91 (s, 1H), 8.53 (s, 1H), 7.80 (s, 1H), 7.24 (s, 1H), 5.81 (s, 1H), 1.71 – 1.60 (m, 1H), 1.07 – 0.98 (m, 2H), 0.79 – 0.70 (m, 2H).
215	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 9.19 (d, <i>J</i> = 1.5 Hz, 1H), 8.11 (dd, <i>J</i> = 7.0, 1.5 Hz, 1H), 7.52 (d, <i>J</i> = 7.0 Hz, 1H), 7.30 (s, 1H), 5.36 (s, 1H), 2.61 – 2.42 (m, 2H), 1.85 – 1.73 (m, 7H), 1.28 – 1.20 (m, 2H).
216	CF ₃		
217	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.80 (d, <i>J</i> = 1.5 Hz, 1H), 8.48 (d, <i>J</i> = 2.0 Hz, 1H), 7.87 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 7.28 (s, 1H), 5.51 (s, 1H), 4.72 – 4.16 (m, 3H), 3.00 – 2.76 (m, 2H).
218	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.93 (s, 2H), 7.26 (s, 1H), 5.74 (s, 1H).
219	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.75 (dd, <i>J</i> = 4.5, 1.5 Hz, 1H), 7.76 (dd, <i>J</i> = 6.0, 1.5 Hz, 1H), 7.24 (s, 1H), 5.81 (s, 1H), 2.33 (s, 3H).
220	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.36 (s, 1H), 7.52 (s, 1H), 7.45 – 7.25 (m, 2H).
221	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.40 (s, 1H), 8.20 (d, <i>J</i> = 4.5 Hz, 1H), 7.34 (d, <i>J</i> = 10.5 Hz, 1H), 7.22 (s, 1H), 2.22 (s, 3H).

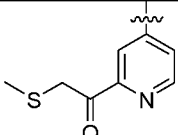
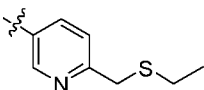
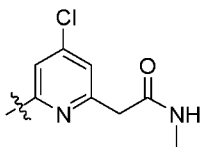
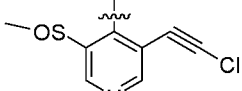
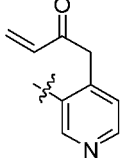
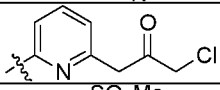
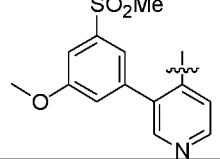
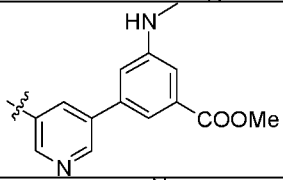
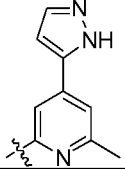
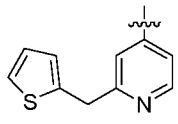
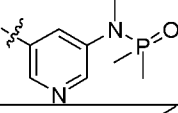
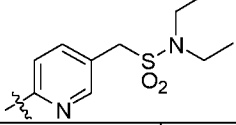
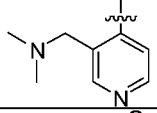
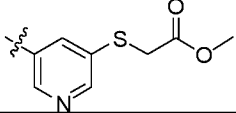
222	CF ₃		(500 MHz, Chloroform-d) δ 8.48 (d, J = 5.0 Hz, 1H), 7.74 (d, J = 5.0 Hz, 1H), 7.24 (s, 1H), 5.68 (s, 1H).
223	CF ₃		(500 MHz, Chloroform-d) δ 8.11 (dd, J = 8.0, 5.0 Hz, 1H), 7.24 (s, 1H), 6.84 (dd, J = 8.0, 7.5 Hz, 1H), 5.67 (s, 1H), 2.83 (s, 3H).
224	CF ₃		(500 MHz, Chloroform-d) δ 8.11 (s, 1H), 7.24 (s, 1H), 6.84 (s, 1H), 5.67 (s, 1H).
225	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.59 (s, 1H), 8.87 (s, 1H), 8.42 (s, 1H), 7.33 (s, 1H), 2.43 (s, 3H).
226	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.16 (s, 1H), 8.88 (d, J = 2.5 Hz, 1H), 8.35 (dd, J = 8.5, 2.5 Hz, 1H), 7.29 (s, 1H), 6.98 (d, J = 8.5 Hz, 1H), 3.93 (s, 3H).
227	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.61 (s, 1H), 8.33 (d, J = 5.0 Hz, 1H), 7.82 (d, J = 7.5 Hz, 1H), 7.33 (s, 1H), 7.16 (dd, J = 7.5, 5.0 Hz, 1H), 3.84 (s, 3H).
228	CF ₃		(500 MHz, Chloroform-d) δ 8.02 (s, 1H), 7.30 (s, 1H), 5.42 (s, 1H), 4.76 – 4.38 (m, 2H), 3.19 – 3.02 (m, 1H), 2.08 – 1.94 (m, 2H), 1.39 (d, J = 7.0 Hz, 3H).
229	CF ₃		(500 MHz, Chloroform-d) δ 8.96 (s, 1H), 7.53 (s, 1H), 7.23 (s, 1H), 6.89 (s, 1H), 5.80 (s, 1H), 4.47 – 4.37 (m, 2H), 3.08 – 2.91 (m, 2H).
230	CF ₃		
231	CF ₃		(500 MHz, Chloroform-d) δ 8.56 (s, 1H), 7.41 (s, 1H), 7.35 (s, 1H), 4.45 (s, 1H), 3.50 (s, 1H), 3.11 – 3.01 (m, 1H), 0.65 – 0.55 (m, 2H), 0.43 – 0.31 (m, 2H).
232	CF ₃		(500 MHz, Chloroform-d) δ 8.42 (s, 1H), 7.25 (s, 1H), 7.11 (s, 1H), 5.68 (s, 1H), 4.90 (hept, J = 7.0 Hz, 1H), 1.29 (d, J = 7.0 Hz, 6H).
233	CF ₃		(500 MHz, Chloroform-d) δ 8.00 (d, J = 1.5 Hz, 1H), 7.52 (d, J = 1.5 Hz, 1H), 7.29 (s, 1H), 5.17 (s, 1H), 5.03 (q, J = 7.0 Hz, 2H), 2.98 (hept, J = 7.5 Hz, 1H), 1.30 (d, J = 7.5 Hz, 6H).
234	CF ₃		(500 MHz, Chloroform-d) δ 7.92 (d, J = 8.0 Hz, 1H), 7.24 (s, 1H), 6.92 (d, J = 8.0 Hz, 1H), 5.68 (s, 1H), 4.68 (s, 2H), 2.99 (s, 1H).
235	CF ₃		(500 MHz, Chloroform-d) δ 8.66 (d, J = 1.0 Hz, 1H), 8.61 (d, J = 1.5 Hz, 1H), 7.90 (dd, J = 1.5, 1.0 Hz, 1H), 7.32 (s, 1H), 5.20 (s, 1H), 2.39 – 2.26 (m, 1H), 1.05 – 0.95 (m, 2H), 0.53 – 0.44 (m, 2H).
236	CF ₃		(500 MHz, Chloroform-d) δ 8.88 (d, J = 1.5 Hz, 1H), 7.94 (dd, J = 8.0, 1.5 Hz, 1H), 7.38 (d, J = 8.0 Hz, 1H), 7.23 (s, 1H), 5.78 (s, 1H), 2.97 (q, J = 8.0 Hz, 2H), 1.36 (t, J = 8.0 Hz, 3H).
237	CF ₃		

238	CF ₃		(500 MHz, Chloroform-d) δ 8.89 (d, J = 1.0 Hz, 1H), 7.94 (dd, J = 8.0, 1.0 Hz, 1H), 7.39 (d, J = 8.0 Hz, 1H), 7.23 (s, 1H), 5.79 (s, 1H), 3.78 (t, J = 7.5 Hz, 2H), 3.21 (t, J = 7.5 Hz, 2H).
239	CF ₃		(500 MHz, Chloroform-d) δ 9.14 (d, J = 1.0 Hz, 1H), 8.04 – 7.96 (m, 2H), 7.77 – 7.71 (m, 2H), 7.31 – 7.22 (m, 3H), 5.59 (s, 1H), 2.33 (s, 3H).
240	CF ₃		(500 MHz, Chloroform-d) δ 8.66 (d, J = 1.0 Hz, 1H), 7.87 (dd, J = 8.0, 1.0 Hz, 1H), 7.47 – 7.39 (m, 2H), 7.31 (s, 1H), 7.18 – 7.12 (m, 2H), 7.09 (d, J = 8.0 Hz, 1H), 6.96 – 6.83 (m, 1H), 5.37 (s, 1H).
241	CF ₃		(500 MHz, Chloroform-d) δ 9.22 (d, J = 1.0 Hz, 1H), 8.11 (dd, J = 8.0, 1.0 Hz, 1H), 7.54 (d, J = 8.0 Hz, 1H), 7.32 – 7.23 (m, 3H), 7.19 – 7.11 (m, 1H), 7.14 – 7.06 (m, 2H), 5.32 (s, 1H), 4.21 (s, 2H).
242	CF ₃		(500 MHz, Chloroform-d) δ 8.69 (d, J = 1.0 Hz, 1H), 7.85 (dd, J = 8.0, 1.0 Hz, 1H), 7.48 – 7.40 (m, 3H), 7.33 – 7.27 (m, 2H), 6.97 (d, J = 8.0 Hz, 1H), 5.31 (s, 1H).
243	CF ₃		(500 MHz, Chloroform-d) δ 9.07 (s, 1H), 7.23 (s, 1H), 7.06 (s, 1H), 5.75 (s, 1H), 4.04 (s, 2H), 3.50 (s, 2H), 2.47 (q, J = 8.0 Hz, 2H), 1.22 (t, J = 8.0 Hz, 3H).
244	CF ₃		(500 MHz, Chloroform-d) δ 8.23 (d, J = 8.0 Hz, 1H), 7.71 (d, J = 8.0 Hz, 1H), 7.36 (s, 1H), 6.70 (s, 1H), 3.98 (s, 3H), 3.28 (s, 6H).
245	CF ₃		(500 MHz, Chloroform-d) δ 9.26 (s, 1H), 8.62 (s, 1H), 7.54 (s, 1H), 7.42 (s, 1H), 7.36 – 7.25 (m, 2H), 7.22 – 7.11 (m, 2H), 3.18 (s, 3H).
246	CF ₃		(500 MHz, Chloroform-d) δ 9.13 (d, J = 1.0 Hz, 1H), 8.44 (d, J = 8.0 Hz, 1H), 8.15 (dd, J = 8.0, 1.0 Hz, 1H), 7.83 (s, 1H), 7.30 (s, 1H), 5.42 (s, 1H), 2.16 (s, 3H).
247	CF ₃		(500 MHz, Chloroform-d) δ 8.92 (d, J = 1.0 Hz, 1H), 8.61 (d, J = 1.5 Hz, 1H), 7.98 (dd, J = 1.5, 1.0 Hz, 1H), 7.24 (s, 1H), 5.83 (s, 1H), 5.72 (s, 2H), 3.52 (s, 2H).
248	CF ₃		(500 MHz, Chloroform-d) δ 9.08 (d, J = 1.0 Hz, 1H), 8.05 (dd, J = 8.0, 1.0 Hz, 1H), 7.37 – 7.18 (m, 5H), 7.03 – 6.92 (m, 1H), 6.78 (d, J = 8.0 Hz, 1H), 5.83 (s, 1H), 3.70 (s, 3H).
249	CF ₃		(500 MHz, Chloroform-d) δ 9.29 (d, J = 1.0 Hz, 1H), 8.22 (dd, J = 8.0, 1.0 Hz, 1H), 7.56 – 7.46 (m, 3H), 7.33 – 7.20 (m, 1H), 7.24 (s, 2H), 5.79 (s, 1H), 4.21 (s, 2H).

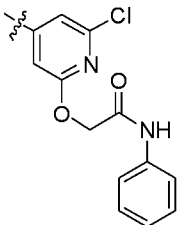
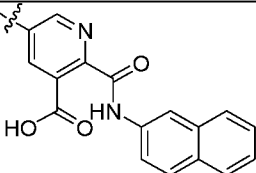
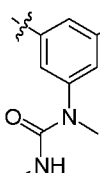
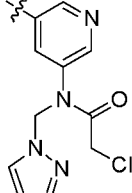
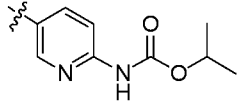
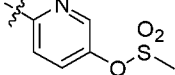
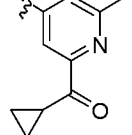
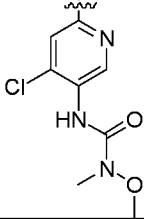
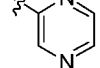
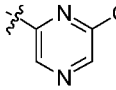
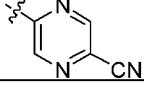
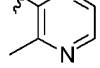
250	CF ₃		(500 MHz, Chloroform-d) δ 8.71 (d, J = 1.0 Hz, 1H), 7.84 (dd, J = 8.0, 1.0 Hz, 1H), 7.48 – 7.40 (m, 4H), 7.31 (s, 1H), 6.98 (d, J = 8.0 Hz, 1H), 5.38 (s, 1H), 5.31 (s, 2H).
251	CF ₃		(500 MHz, Chloroform-d) δ 9.15 (d, J = 1.0 Hz, 1H), 8.10 (dd, J = 8.0, 1.0 Hz, 1H), 7.24 (s, 1H), 7.23 – 7.15 (m, 2H), 6.95 – 6.88 (m, 2H), 6.82 – 6.74 (m, 2H), 5.89 (s, 1H), 2.86 (s, 3H).
252	CF ₃		(500 MHz, Chloroform-d) δ 8.94 (d, J = 1.0 Hz, 1H), 7.90 (dd, J = 8.0, 1.0 Hz, 1H), 7.28 (s, 1H), 6.58 (d, J = 8.0 Hz, 1H), 5.51 (s, 1H), 4.48 (s, 2H), 3.26 (q, J = 8.0 Hz, 2H), 2.13 (s, 3H), 0.93 (t, J = 8.0 Hz, 3H).
253	CF ₃		(500 MHz, Chloroform-d) δ 8.61 (d, J = 1.0 Hz, 1H), 7.88 (dd, J = 8.0, 1.0 Hz, 1H), 7.23 (s, 1H), 6.92 (d, J = 8.0 Hz, 1H), 5.78 (s, 1H), 5.08 (d, J = 63.5 Hz, 2H).
254	CF ₃		(500 MHz, Chloroform-d) δ 9.23 (d, J = 1.0 Hz, 1H), 8.25 (dd, J = 8.0, 1.0 Hz, 1H), 8.19 (d, J = 8.0 Hz, 1H), 7.26 (s, 1H), 5.70 (s, 1H), 4.65 (s, 2H).
255	CF ₃		(500 MHz, Chloroform-d) δ 9.23 (d, J = 1.0 Hz, 1H), 8.18 (dd, J = 8.0, 1.0 Hz, 1H), 7.31 (d, J = 8.0 Hz, 1H), 7.23 (s, 1H), 5.78 (s, 1H), 4.04 (s, 2H), 3.58 (t, J = 8.0 Hz, 2H), 2.95 (t, J = 8.0 Hz, 2H).
256	CF ₃		(500 MHz, Chloroform-d) δ 8.96 (d, J = 1.5 Hz, 1H), 7.97 (dd, J = 8.0, 1.5 Hz, 1H), 7.24 (s, 1H), 6.58 (d, J = 8.0 Hz, 1H), 5.80 (s, 1H), 5.44 (s, 2H), 3.45 (q, J = 8.0 Hz, 2H), 3.24 (s, 3H), 1.33 (t, J = 8.0 Hz, 3H).
257	CF ₃		(500 MHz, Chloroform-d) δ 8.91 (d, J = 1.0 Hz, 1H), 7.89 (dd, J = 7.5, 1.0 Hz, 1H), 7.23 (s, 1H), 6.78 (d, J = 7.5 Hz, 1H), 5.66 (s, 1H), 2.86 (s, 3H), 2.27 (q, J = 8.0 Hz, 2H), 1.07 (t, J = 8.0 Hz, 3H).
258	CF ₃		
259	CF ₃		
260	CF ₃		
261	CF ₃		(500 MHz, Chloroform-d) δ 8.86 (d, J = 1.0 Hz, 1H), 8.63 (d, J = 1.5 Hz, 1H), 8.00 (dd, J = 1.5, 1.0 Hz, 1H), 7.31 (s, 1H), 5.22 (s, 1H), 4.54 (s, 2H), 4.31 – 3.54 (m, 4H).
262	CF ₃		(500 MHz, Chloroform-d) δ 8.41 (d, J = 1.0 Hz, 1H), 8.09 (d, J = 1.5 Hz, 1H), 7.29 – 7.21 (m, 2H), 6.00 – 5.78 (m, 1H), 5.29 – 5.10 (m, 2H), 4.26 (s, 1H), 3.99 – 3.77 (m, 2H).

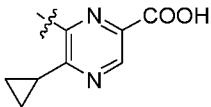
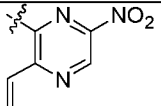
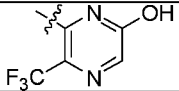
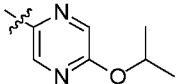
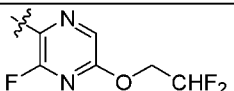
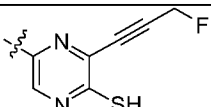
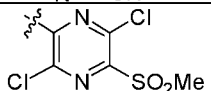
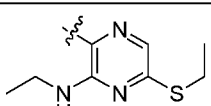
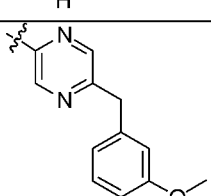
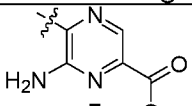
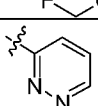
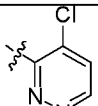
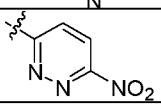
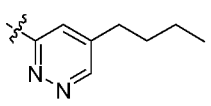
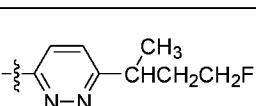
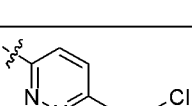
263	CF ₃		(500 MHz, Chloroform-d) δ 8.41 (dd, $J = 5.5, 1.0$ Hz, 1H), 8.09 – 8.00 (m, 2H), 7.29 – 7.21 (m, 2H), 5.78 (s, 1H).
264	CF ₃		(500 MHz, Chloroform-d) δ 8.26 (dd, $J = 8.0, 1.0$ Hz, 1H), 8.04 (dd, $J = 7.5, 1.0$ Hz, 1H), 7.92 (dd, $J = 8.0, 7.5$ Hz, 1H), 7.14 (s, 1H), 5.76 (s, 1H).
265	CF ₃		(500 MHz, Chloroform-d) δ 8.75 (dd, $J = 5.0, 1.0$ Hz, 1H), 7.85 (dd, $J = 8.0, 1.0$ Hz, 1H), 7.49 (dd, $J = 8.0, 5.0$ Hz, 1H), 7.14 (s, 1H), 5.46 (s, 1H).
266	CF ₃		(500 MHz, Chloroform-d) δ 8.67 (d, $J = 5.0$ Hz, 1H), 7.45 (dd, $J = 5.0, 1.0$ Hz, 1H), 7.28 (d, $J = 1.0$ Hz, 1H), 7.12 (s, 1H), 5.66 (s, 1H), 2.38 (s, 3H).
267	CF ₃		
268	CF ₃		(500 MHz, Chloroform-d) δ 8.60 (dd, $J = 5.0, 1.0$ Hz, 1H), 7.54 (dd, $J = 8.0, 1.0$ Hz, 1H), 7.37 (dd, $J = 8.0, 5.0$ Hz, 1H), 7.14 (s, 1H), 5.36 (s, 1H), 3.38 – 3.29 (m, 1H), 2.04 – 1.92 (m, 4H), 1.74 – 1.57 (m, 4H).
269	CF ₃		(500 MHz, Chloroform-d) δ 8.52 (d, $J = 1.0$ Hz, 1H), 7.82 (d, $J = 8.0$ Hz, 1H), 7.56 (dd, $J = 8.0, 1.0$ Hz, 1H), 7.08 (s, 1H), 5.73 (s, 1H), 2.47 (d, $J = 7.5$ Hz, 2H), 1.94 – 1.82 (m, 1H), 0.92 (d, $J = 7.0$ Hz, 6H).
270	CF ₃		(500 MHz, Chloroform-d) δ 7.61 (dd, $J = 8.0, 7.5$ Hz, 1H), 7.23 (dd, $J = 8.0, 1.0$ Hz, 1H), 7.13 (s, 1H), 6.87 (dd, $J = 8.0, 1.0$ Hz, 1H), 5.75 (s, 1H), 5.03 (q, $J = 9.0$ Hz, 2H).
271	CF ₃		(500 MHz, Chloroform-d) δ 7.65 (dd, $J = 8.0, 7.5$ Hz, 1H), 7.26 (dd, $J = 8.0, 1.0$ Hz, 1H), 7.17 (s, 1H), 6.89 (dd, $J = 8.0, 1.0$ Hz, 1H), 5.98 (s, 1H), 5.86 – 5.66 (m, 1H), 4.32 – 4.26 (m, 2H).
272	CF ₃		
273	CF ₃		
274	CF ₃		(500 MHz, Chloroform-d) δ 7.11 (s, 1H), 6.58 (s, 1H), 6.15 (s, 1H), 4.71 (s, 1H), 2.84 (s, 3H), 2.28 (s, 3H).
275	CF ₃		(500 MHz, Chloroform-d) δ 7.11 (s, 1H), 6.58 (dd, $J = 10.5, 7.5$ Hz, 1H), 6.15 (dd, $J = 7.5, 5.5$ Hz, 1H), 5.71 (s, 1H), 2.28 (s, 3H).
276	CF ₃		(500 MHz, Chloroform-d) δ 8.23 (d, $J = 1.0$ Hz, 1H), 8.05 (d, $J = 1.0$ Hz, 1H), 7.10 (s, 1H), 5.82 (s, 1H), 4.04 (s, 2H), 3.12 (s, 3H), 2.47 (q, $J = 8.0$ Hz, 2H), 1.24 (t, $J = 8.0$ Hz, 3H).
277	CF ₃		(500 MHz, Chloroform-d) δ 8.72 (d, $J = 1.0$ Hz, 1H), 8.01 (d, $J = 8.0$ Hz, 1H), 7.81 (dd, $J = 8.0, 1.0$ Hz, 1H), 7.12 (s, 1H), 5.62 (s, 1H), 4.54 (s, 2H), 4.31 – 4.21 (m, 2H), 3.60 – 3.54 (m, 2H).
278	CF ₃		(500 MHz, Chloroform-d) δ 8.54 (d, $J = 5.1$ Hz, 2H), 7.68 (d, $J = 5.1$ Hz, 2H), 7.31 (s, 1H), 5.31 (s, 1H).

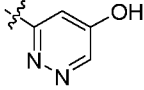
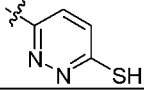
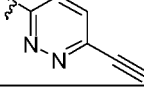
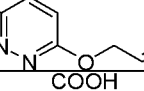
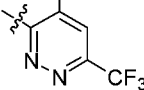
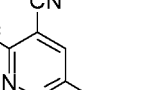
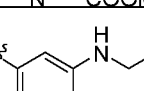
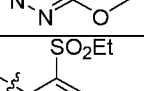
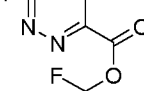
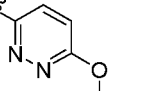
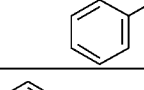
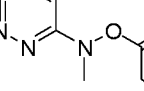
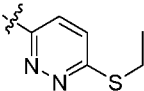
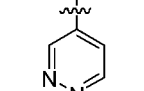
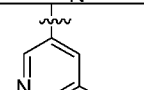
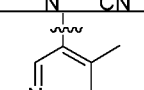
279	CF ₃		(500 MHz, Chloroform-d) δ 8.58 – 8.49 (m, 2H), 7.61 (d, J = 5.0 Hz, 1H), 7.27 (s, 1H), 5.82 (s, 1H).
280	CF ₃		(500 MHz, Chloroform-d) δ 8.65 (d, J = 5.0 Hz, 1H), 7.58 (d, J = 1.0 Hz, 1H), 7.46 (dd, J = 5.0, 1.0 Hz, 1H), 7.30 (s, 1H), 5.35 (s, 1H), 1.33 (s, 9H).
281	CF ₃		(500 MHz, Chloroform-d) δ 8.12 (d, J = 5.0 Hz, 1H), 7.24 (s, 1H), 7.13 (d, J = 1.0 Hz, 1H), 7.01 (dd, J = 5.0, 1.0 Hz, 1H), 5.81 (s, 1H), 4.90 (hept, J = 7.0 Hz, 1H), 1.29 (d, J = 7.0 Hz, 6H).
282	CF ₃		(500 MHz, Chloroform-d) δ 8.67 (d, J = 8.0 Hz, 1H), 7.41 (d, J = 5.0 Hz, 1H), 7.26 (s, 1H), 6.31 (s, 1H), 4.12 – 4.02 (m, 2H), 3.43 – 3.31 (m, 1H), 1.79 – 1.73 (m, 2H), 1.33 (d, J = 7.0 Hz, 3H).
283	CF ₃		
284	CF ₃		(500 MHz, Chloroform-d) δ 8.05 (d, J = 1.0 Hz, 1H), 7.67 (d, J = 1.0 Hz, 1H), 7.26 (s, 1H), 5.96 – 5.86 (m, 1H), 5.84 (s, 1H), 4.30 – 4.20 (m, 2H).
285	CF ₃		(500 MHz, Chloroform-d) δ 8.73 (d, J = 5.0 Hz, 1H), 7.76 (d, J = 5.0 Hz, 1H), 7.24 (s, 1H), 5.62 (s, 1H), 2.66 (q, J = 8.0 Hz, 2H), 2.45 (s, 3H), 1.22 (t, J = 8.0 Hz, 3H).
286	CF ₃		(500 MHz, Chloroform-d) δ 8.61 (s, 1H), 8.34 (s, 1H), 7.36 (s, 1H), 6.36 (s, 1H), 4.52 (s, 2H), 3.58 (q, J = 8.0 Hz, 2H), 3.26 (q, J = 8.0 Hz, 2H), 2.95 (s, 3H), 1.15 (d, J = 8.0 Hz, 3H), 1.10 (d, J = 8.0 Hz, 3H).
287	CF ₃		(500 MHz, Chloroform-d) δ 8.37 (s, 1H), 7.46 – 7.40 (m, 2H), 7.44 – 7.34 (m, 2H), 7.37 – 7.27 (m, 1H), 7.31 (s, 1H), 7.18 (s, 1H), 5.66 (s, 1H), 5.28 (s, 2H), 2.32 (s, 3H).
288	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.15 (s, 1H), 8.89 (d, J = 2.0 Hz, 1H), 8.25 (dd, J = 7.0, 2.0 Hz, 1H), 7.19 (s, 1H), 6.94 (d, J = 7.0 Hz, 1H), 3.69 – 3.57 (m, 4H), 3.55 – 3.38 (m, 4H).
289	CF ₃		(500 MHz, Chloroform-d) δ 8.31 (s, 1H), 7.26 (s, 1H), 6.96 (s, 1H), 6.80 – 6.61 (m, 1H), 5.85 (s, 1H), 5.72 – 5.43 (m, 2H), 2.32 (s, 3H).
290	CF ₃		(500 MHz, Chloroform-d) δ 8.29 (s, 1H), 7.25 (s, 1H), 5.75 (s, 1H), 4.07 (q, J = 8.0 Hz, 4H), 2.48 (s, 3H), 1.20 (t, J = 8.0 Hz, 6H).
291	CF ₃		(500 MHz, Chloroform-d) δ 8.38 (d, J = 5.0 Hz, 1H), 8.31 (s, 1H), 7.62 (d, J = 5.0 Hz, 1H), 7.29 (t, J = 73.5 Hz, 1H), 7.25 (s, 2H), 7.02 (s, 1H), 5.70 (s, 1H).
292	CF ₃		(500 MHz, Chloroform-d) δ 8.87 (d, J = 1.0 Hz, 1H), 8.55 (d, J = 1.5 Hz, 1H), 7.98 (dd, J = 1.5, 1.0 Hz, 1H), 7.28 (s, 1H), 5.72 (s, 1H), 4.52 (s, 2H), 3.36 (s, 3H).
293	CF ₃		

294	CF ₃		(500 MHz, Chloroform-d) δ 8.83 (d, J = 5.0 Hz, 1H), 8.42 (d, J = 1.0 Hz, 1H), 7.98 (dd, J = 5.0, 1.0 Hz, 1H), 7.24 (s, 1H), 5.79 (s, 1H), 3.55 (s, 2H), 2.20 (s, 3H).
295	CF ₃		(500 MHz, Chloroform-d) δ 9.11 (d, J = 1.0 Hz, 1H), 8.05 (dd, J = 8.0, 1.0 Hz, 1H), 7.32 – 7.23 (m, 2H), 5.38 (s, 1H), 4.03 (s, 2H), 2.48 (q, J = 8.0 Hz, 2H), 1.27 (t, J = 8.0 Hz, 3H).
296	CF ₃		(500 MHz, Chloroform-d) δ 7.73 (d, J = 1.0 Hz, 1H), 7.53 (d, J = 1.0 Hz, 1H), 7.11 (s, 1H), 3.77 (s, 2H), 2.91 (s, 3H).
297	CF ₃		
298	CF ₃		
299	CF ₃		
300	CF ₃		(500 MHz, Chloroform-d) δ 9.06 (s, 1H), 8.82 (d, J = 5.0 Hz, 1H), 7.94 (dd, J = 2.0, 1.5 Hz, 1H), 7.75 (d, J = 5.0 Hz, 1H), 7.55 (dd, J = 2.5, 1.5 Hz, 1H), 7.44 (dd, J = 2.5, 2.0 Hz, 1H), 7.28 (s, 1H), 5.63 (s, 1H), 3.81 (s, 3H), 3.12 (s, 3H).
301	CF ₃		(500 MHz, Chloroform-d) δ 9.11 (d, J = 1.0 Hz, 1H), 8.96 (d, J = 1.5 Hz, 1H), 8.36 (dd, J = 1.5, 1.0 Hz, 1H), 7.68 – 7.63 (m, 1H), 7.25 (s, 1H), 7.09 – 6.92 (m, 2H), 5.89 (s, 1H), 4.33 (s, 1H), 3.95 (s, 3H), 2.83 (s, 3H).
302	CF ₃		(500 MHz, Chloroform-d) δ 7.90 (d, J = 1.0 Hz, 1H), 7.76 (d, J = 2.5 Hz, 1H), 7.48 (d, J = 1.0 Hz, 1H), 7.13 (s, 1H), 6.75 (d, J = 2.5 Hz, 1H), 2.69 (s, 3H).
303	CF ₃		(500 MHz, Chloroform-d) δ 8.76 (d, J = 5.0 Hz, 1H), 7.77 (d, J = 1.0 Hz, 1H), 7.64 (dd, J = 5.0, 1.0 Hz, 1H), 7.27 (d, J = 2.5 Hz, 1H), 7.24 (s, 1H), 7.00 (dd, J = 2.5, 2.0 Hz, 1H), 6.88 (d, J = 2.0 Hz, 1H), 5.80 (s, 1H), 4.41 (s, 2H).
304	CF ₃		
305	CF ₃		(500 MHz, Chloroform-d) δ 8.66 (d, J = 1.5 Hz, 1H), 7.83 (d, J = 8.0 Hz, 1H), 7.66 (dd, J = 8.0, 1.5 Hz, 1H), 7.10 (s, 1H), 5.44 (s, 1H), 4.67 (s, 2H), 2.59 (q, J = 8.0 Hz, 4H), 1.17 (t, J = 8.0 Hz, 6H).
306	CF ₃		(500 MHz, Chloroform-d) δ 8.66 (s, 1H), 8.51 (d, J = 5.0 Hz, 1H), 7.48 (d, J = 5.0 Hz, 1H), 7.42 (s, 1H), 6.07 (s, 1H), 3.28 (s, 2H), 2.34 (s, 6H).
307	CF ₃		(500 MHz, Chloroform-d) δ 8.72 (d, J = 1.5 Hz, 1H), 8.66 (d, J = 1.0 Hz, 1H), 8.12 (dd, J = 1.5, 1.0 Hz, 1H), 7.29 (s, 1H), 5.54 (s, 1H), 3.84 (s, 3H), 3.70 (s,

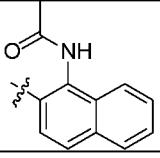
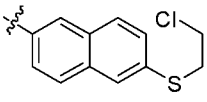
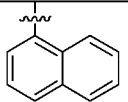
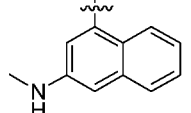
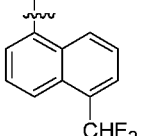
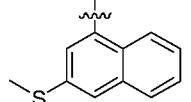
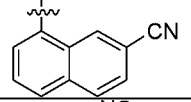
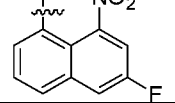
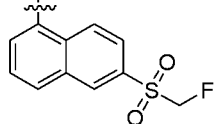
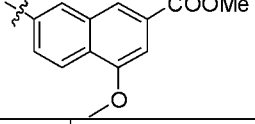
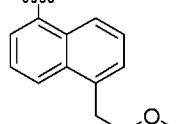
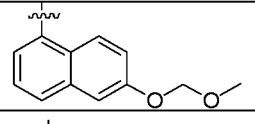
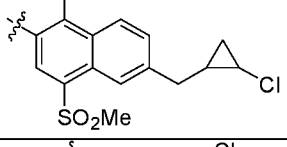
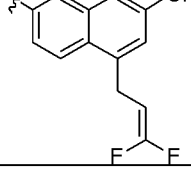
			2H).
308	CF ₃		(500 MHz, Chloroform-d) δ 8.63 (d, <i>J</i> = 5.0 Hz, 1H), 7.79 (d, <i>J</i> = 1.0 Hz, 1H), 7.38 (dd, <i>J</i> = 5.0, 1.0 Hz, 1H), 7.12 (s, 1H), 3.69 (s, 3H), 3.59 (s, 2H).
309	CF ₃		(500 MHz, Chloroform-d) δ 8.67 (d, <i>J</i> = 5.0 Hz, 1H), 7.88 (d, <i>J</i> = 1.0 Hz, 1H), 7.64 (dd, <i>J</i> = 5.0, 1.0 Hz, 1H), 7.30 (s, 1H), 5.67 (s, 2H), 5.33 (s, 1H), 2.69 (hept, <i>J</i> = 6.5 Hz, 1H), 1.24 (d, <i>J</i> = 6.5 Hz, 6H).
310	CF ₃		
311	CF ₃		(500 MHz, Chloroform-d) δ 8.60 (d, <i>J</i> = 5.0 Hz, 1H), 7.99 (d, <i>J</i> = 1.0 Hz, 1H), 7.28 (dd, <i>J</i> = 5.0, 1.0 Hz, 1H), 7.14 (s, 1H), 6.87 (dd, <i>J</i> = 2.0, 1.0 Hz, 1H), 6.72 – 6.56 (m, 3H), 4.48 (s, 1H), 3.95 (q, <i>J</i> = 8.0 Hz, 2H), 2.78 (s, 3H), 1.91 – 1.81 (m, 1H), 1.20 (t, <i>J</i> = 8.0 Hz, 3H), 1.14 – 1.05 (m, 2H), 0.78 – 0.69 (m, 2H).
312	CF ₃		(500 MHz, Chloroform-d) δ 8.41 (d, <i>J</i> = 5.0 Hz, 1H), 8.23 (s, 1H), 7.59 (d, <i>J</i> = 5.0 Hz, 1H), 7.29 (s, 1H), 6.11 (s, 1H), 4.31 (s, 2H), 3.39 (s, 3H).
313	CF ₃		(500 MHz, Chloroform-d) δ 8.60 (d, <i>J</i> = 1.5 Hz, 1H), 8.12 (d, <i>J</i> = 1.0 Hz, 1H), 7.53 (dd, <i>J</i> = 1.5, 1.0 Hz, 1H), 7.24 (s, 1H), 5.81 (s, 1H), 4.22 (t, <i>J</i> = 6.5 Hz, 2H), 2.87 (t, <i>J</i> = 6.5 Hz, 2H), 2.12 (s, 3H).
314	CF ₃		
315	CF ₃		(500 MHz, Chloroform-d) δ 8.42 (s, 1H), 7.29 (s, 1H), 6.94 (s, 1H), 5.78 (s, 1H), 4.21 (t, <i>J</i> = 7.0 Hz, 2H), 2.65 (t, <i>J</i> = 7.0 Hz, 2H).
316	CF ₃		(500 MHz, Chloroform-d) δ 9.74 (d, <i>J</i> = 1.0 Hz, 1H), 7.93 – 7.84 (m, 2H), 7.22 (d, <i>J</i> = 2.5 Hz, 1H), 7.13 (s, 1H), 6.63 (d, <i>J</i> = 2.5 Hz, 1H), 4.91 (s, 2H), 3.85 (s, 3H), 3.63 (s, 2H).
317	CF ₃		(500 MHz, Chloroform-d) δ 7.25 (s, 1H), 7.13 (s, 1H), 5.46 (s, 2H), 3.89 (hept, <i>J</i> = 6.5 Hz, 1H), 3.63 (s, 2H), 3.42 (q, <i>J</i> = 8.0 Hz, 2H), 2.66 (s, 3H), 1.20 (t, <i>J</i> = 8.0 Hz, 3H), 1.15 (d, <i>J</i> = 6.5 Hz, 6H).
318	CF ₃		(500 MHz, Chloroform-d) δ 9.26 (s, 1H), 8.37 (d, <i>J</i> = 8.0 Hz, 1H), 8.12 (d, <i>J</i> = 8.0 Hz, 1H), 7.31 (s, 1H), 5.33 (s, 1H), 3.48 (q, <i>J</i> = 8.0 Hz, 2H), 3.21 – 3.13 (m, 1H), 1.97 – 1.87 (m, 2H), 1.84 – 1.72 (m, 1H), 1.75 – 1.57 (m, 4H), 1.54 – 1.42 (m, 2H), 1.45 – 1.37 (m, 1H), 1.23 (t, <i>J</i> = 8.0 Hz, 3H).

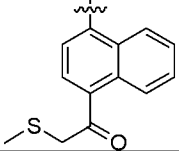
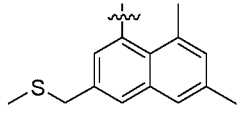
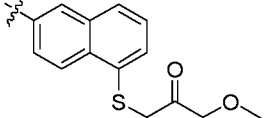
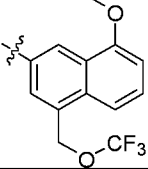
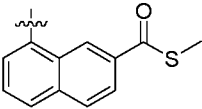
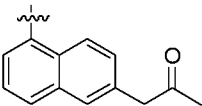
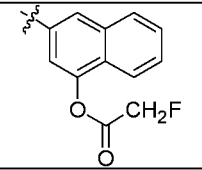
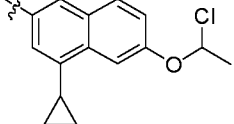
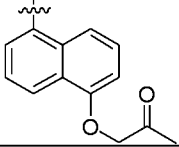
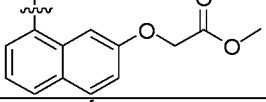
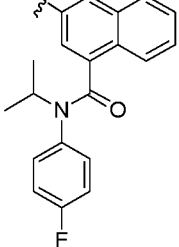
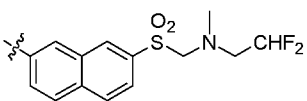
319	CF ₃		(500 MHz, Chloroform-d) δ 8.01 (s, 1H), 7.33 (s, 1H), 7.34 – 7.23 (m, 6H), 7.07 (s, 1H), 5.83 (s, 1H), 4.88 (s, 2H).
320	CF ₃		(500 MHz, Chloroform-d) δ 9.45 (d, J = 1.5 Hz, 1H), 8.59 (s, 1H), 8.52 (d, J = 1.5 Hz, 1H), 7.96 – 7.80 (m, 2H), 7.41 – 7.34 (m, 4H), 7.31 – 7.26 (m, 2H), 4.59 (s, 1H).
321	CF ₃		(500 MHz, Chloroform-d) δ 7.68 (dd, J = 2.0, 1.5 Hz, 1H), 7.17 (s, 1H), 7.07 (s, 1H), 7.01 (dd, J = 1.5, 1.0 Hz, 1H), 6.94 (dd, J = 2.0, 1.0 Hz, 1H), 4.67 (s, 1H), 3.81 (s, 3H), 3.74 (s, 3H), 2.84 (s, 3H).
322	CF ₃		(500 MHz, Chloroform-d) δ 9.41 (d, J = 1.0 Hz, 1H), 8.68 (d, J = 1.0 Hz, 1H), 8.03 (s, 1H), 7.44 (d, J = 2.5 Hz, 1H), 7.36 – 7.30 (m, 2H), 6.61 (dd, J = 2.5, 2.0 Hz, 1H), 5.82 (s, 2H), 5.17 (s, 1H), 3.63 (s, 2H).
323	CF ₃		(500 MHz, Chloroform-d) δ 9.07 (d, J = 1.5 Hz, 1H), 8.38 (d, J = 8.0 Hz, 1H), 8.16 (dd, J = 8.0, 1.5 Hz, 1H), 7.30 (s, 1H), 6.64 (s, 1H), 5.29 (s, 1H), 5.32 – 5.20 (hept, J = 6.5 Hz, 1H), 1.29 (d, J = 6.5 Hz, 6H).
324	CF ₃		(500 MHz, Chloroform-d) δ 8.74 (d, J = 1.0 Hz, 1H), 8.00 (d, J = 8.0 Hz, 1H), 7.92 (dd, J = 8.0, 1.0 Hz, 1H), 7.12 (s, 1H), 5.39 (s, 1H), 3.53 (s, 3H).
325	CF ₃		(500 MHz, Chloroform-d) δ 8.27 (d, J = 1.0 Hz, 1H), 7.87 (d, J = 1.0 Hz, 1H), 7.31 (s, 1H), 5.43 (s, 1H), 2.68 (s, 3H), 2.32 – 2.21 (m, 1H), 1.37 – 1.27 (m, 2H), 1.08 – 0.99 (m, 2H).
326	CF ₃		(500 MHz, Chloroform-d) δ 8.07 (s, 1H), 7.84 (s, 1H), 7.13 (s, 1H), 5.33 (s, 1H), 3.58 (s, 3H), 2.70 (s, 3H).
327	CF ₃		(500 MHz, Chloroform-d) δ 9.32 (s, 1H), 8.82 (d, J = 5.5 Hz, 1H), 8.76 (d, J = 5.5 Hz, 1H), 7.10 (s, 1H), 5.13 (s, 1H).
328	CF ₃		(500 MHz, Chloroform-d) δ 9.24 (s, 1H), 8.72 (s, 1H), 7.29 (s, 1H), 5.18 (s, 1H).
329	CF ₃		(500 MHz, Chloroform-d) δ 9.42 (s, 1H), 9.11 (s, 1H), 7.30 (s, 1H), 5.23 (s, 1H).
330	CF ₃		(500 MHz, Chloroform-d) δ 8.62 (d, J = 5.5 Hz, 1H), 8.34 (d, J = 5.5 Hz, 1H), 7.28 (s, 1H), 5.19 (s, 1H), 2.80 (s, 3H).

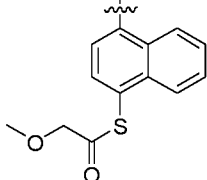
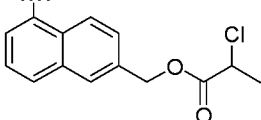
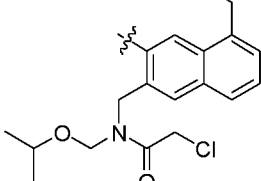
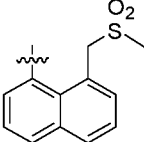
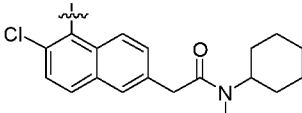
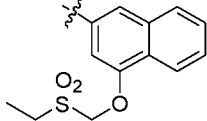
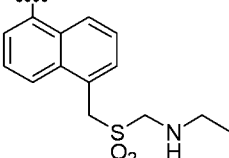
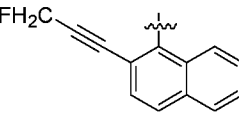
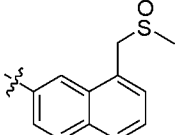
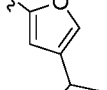
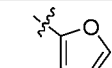
331	CF ₃		(500 MHz, Chloroform-d) δ 9.18 (s, 1H), 7.31 (s, 1H), 6.93 (s, 1H), 5.43 (s, 1H), 1.99 – 1.83 (m, 1H), 0.91 – 0.81 (m, 2H), 0.70 – 0.60 (m, 2H).
332	CF ₃		(500 MHz, Chloroform-d) δ 9.91 (s, 1H), 7.35 (s, 1H), 6.96 – 6.82 (m, 1H), 6.01 – 5.83 (m, 1H), 5.35 (s, 1H).
333	CF ₃		(500 MHz, Chloroform-d) δ 8.12 (s, 1H), 7.99 (s, 1H), 7.28 (s, 1H), 5.29 (s, 1H).
334	CF ₃		(500 MHz, Chloroform-d) δ 9.13 (s, 1H), 8.40 (s, 1H), 7.28 (s, 1H), 5.39 (s, 1H), 4.89 (hept, J = 6.5 Hz, 1H), 1.30 (d, J = 6.5 Hz, 6H).
335	CF ₃		(500 MHz, Chloroform-d) δ 8.35 (s, 1H), 7.25 (s, 1H), 5.91 – 5.80 (m, 1H), 5.70 (s, 1H), 4.34 – 4.28 (m, 2H).
336	CF ₃		
337	CF ₃		(500 MHz, Chloroform-d) δ 7.26 (s, 1H), 5.71 (s, 1H), 3.35 (s, 3H).
338	CF ₃		(500 MHz, Chloroform-d) δ 9.21 (s, 1H), 8.55 (s, 1H), 7.33 (s, 1H), 5.07 (s, 1H), 3.53 (q, J = 8.0 Hz, 2H), 2.97 (q, J = 8.0 Hz, 2H), 1.37 (t, J = 8.0 Hz, 3H), 1.20 (t, J = 8.0 Hz, 3H).
339	CF ₃		(500 MHz, Chloroform-d) δ 9.34 (s, 1H), 8.75 (s, 1H), 7.30 – 7.23 (m, 2H), 7.02 – 6.96 (m, 3H), 5.41 (s, 1H), 3.88 (s, 2H), 3.71 (s, 3H).
340	CF ₃		
341	CF ₃		(500 MHz, Chloroform-d) δ 9.50 (dd, J = 5.5, 1.5 Hz, 1H), 8.01 (dd, J = 7.5, 1.5 Hz, 1H), 7.82 (dd, J = 7.5, 5.5 Hz, 1H), 7.23 (s, 1H), 5.77 (s, 1H).
342	CF ₃		(500 MHz, Chloroform-d) δ 9.49 (d, J = 5.5 Hz, 1H), 7.88 (d, J = 5.5 Hz, 1H), 7.29 (s, 1H), 5.37 (s, 1H).
343	CF ₃		(500 MHz, Chloroform-d) δ 8.78 (d, J = 7.5 Hz, 1H), 8.38 (d, J = 7.5 Hz, 1H), 7.24 (s, 1H), 5.82 (s, 1H).
344	CF ₃		(500 MHz, Chloroform-d) δ 9.40 (d, J = 1.5 Hz, 1H), 7.94 (d, J = 1.5 Hz, 1H), 7.27 (s, 1H), 5.62 (s, 1H), 2.60 (t, J = 8.0 Hz, 2H), 1.54 – 1.31 (m, 4H), 0.89 (t, J = 7.5 Hz, 3H).
345	CF ₃		(500 MHz, Chloroform-d) δ 7.96 (d, J = 7.5 Hz, 1H), 7.77 (d, J = 7.5 Hz, 1H), 7.23 (s, 1H), 5.79 (s, 1H), 4.33 – 4.12 (m, 2H), 3.17 – 3.01 (m, 1H), 2.12 – 1.88 (m, 2H), 1.39 (d, J = 6.5 Hz, 3H).
346	CF ₃		(500 MHz, Chloroform-d) δ 8.02 (d, J = 7.5 Hz, 1H), 7.69 (d, J = 7.5 Hz, 1H), 7.27 (s, 1H), 5.39 (s, 1H), 4.46 – 4.23 (m, 1H), 2.53 – 2.34 (m, 1H), 1.53 – 1.29 (m, 1H).

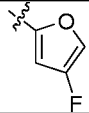
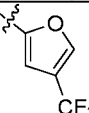
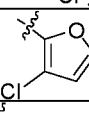
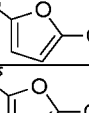
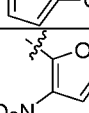
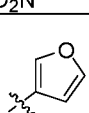
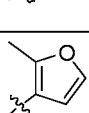
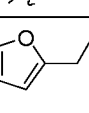
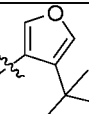
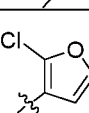
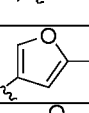
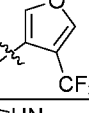
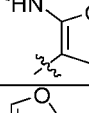
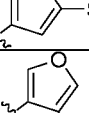
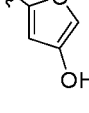
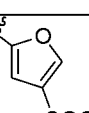
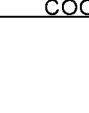
347	CF ₃		(500 MHz, Chloroform-d) δ 9.31 (d, J = 1.5 Hz, 1H), 7.46 (d, J = 1.5 Hz, 1H), 7.25 (s, 1H), 5.93 (s, 1H), 5.49 (s, 1H).
348	CF ₃		(500 MHz, Chloroform-d) δ 7.99 (d, J = 7.5 Hz, 1H), 7.86 (d, J = 7.5 Hz, 1H), 7.27 (s, 1H), 5.63 (s, 1H), 5.17 (s, 1H).
349	CF ₃		(500 MHz, Chloroform-d) δ 8.04 (d, J = 7.5 Hz, 1H), 7.98 (d, J = 7.3 Hz, 1H), 7.26 (s, 1H), 5.44 (s, 1H), 3.35 (s, 1H).
350	CF ₃		
351	CF ₃		(500 MHz, Chloroform-d) δ 8.30 (s, 1H), 7.84 (s, 1H), 7.31 (s, 1H), 5.53 (s, 1H).
352	CF ₃		(500 MHz, Chloroform-d) δ 9.58 (s, 1H), 7.07 (s, 1H), 5.31 (s, 1H), 3.73 (s, 3H).
353	CF ₃		(500 MHz, Chloroform-d) δ 7.23 (s, 1H), 7.07 (s, 1H), 5.98 – 5.81 (m, 1H), 5.77 (s, 1H), 5.29 – 5.20 (m, 1H), 5.14 – 5.03 (m, 1H), 4.90 (s, 1H), 3.99 – 3.83 (m, 2H), 3.76 (s, 3H).
354	CF ₃		
355	CF ₃		(500 MHz, Chloroform-d) δ 8.12 (d, J = 7.5 Hz, 1H), 7.48 (d, J = 7.5 Hz, 1H), 7.30 – 7.17 (m, 4H), 7.33 (s, 1H), 5.41 (s, 1H).
356	CF ₃		(500 MHz, Chloroform-d) δ 7.86 (d, J = 7.5 Hz, 1H), 7.28 (s, 1H), 7.06 (d, J = 7.5 Hz, 1H), 5.21 (s, 1H), 2.86 (s, 3H), 2.27 (q, J = 8.0 Hz, 2H), 1.12 (t, J = 8.0 Hz, 3H).
357	CF ₃		(500 MHz, Chloroform-d) δ 8.02 (d, J = 7.5 Hz, 1H), 7.85 (d, J = 7.5 Hz, 1H), 7.27 (s, 1H), 5.46 (s, 1H), 2.97 (q, J = 8.1 Hz, 2H), 1.37 (t, J = 8.0 Hz, 3H).
358	CF ₃		(500 MHz, Chloroform-d) δ 9.72 (d, J = 1.5 Hz, 1H), 9.43 (d, J = 5.5 Hz, 1H), 8.04 (dd, J = 5.5, 1.5 Hz, 1H), 7.24 (s, 1H), 5.86 (s, 1H).
359	CF ₃		(500 MHz, Chloroform-d) δ 8.61 (d, J = 1.5 Hz, 1H), 8.21 (d, J = 1.5 Hz, 1H), 7.26 (s, 1H), 5.87 (s, 1H).
360	CF ₃		(500 MHz, Chloroform-d) δ 9.48 (s, 1H), 9.42 (s, 1H), 7.27 (s, 1H), 5.60 (s, 1H), 2.36 (s, 3H).
361	CF ₃		(500 MHz, Chloroform-d) δ 9.58 (d, J = 1.5 Hz, 1H), 7.94 (d, J = 1.5 Hz, 1H), 7.28 (s, 1H), 5.54 (s, 1H), 4.47 – 4.37 (m, 2H), 2.75 – 2.34 (m, 2H).
362	CF ₃		(500 MHz, Chloroform-d) δ 9.35 (d, J = 6.0 Hz, 1H), 7.84 (d, J = 6.0 Hz, 1H), 7.27 (s, 1H), 5.73 (s, 1H), 2.38 – 2.22 (m, 1H), 0.85 – 0.74 (m, 2H), 0.73 – 0.61 (m, 2H).

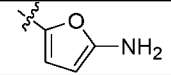
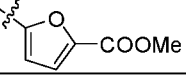
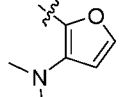
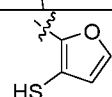
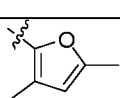
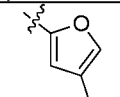
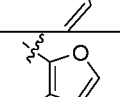
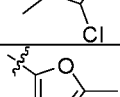
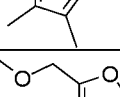
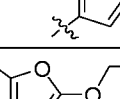
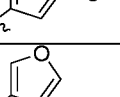
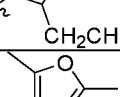
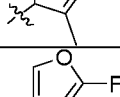
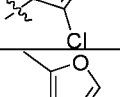
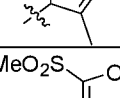
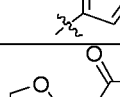
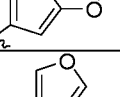
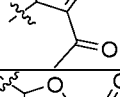
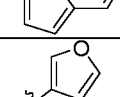
363	CF ₃		(500 MHz, Chloroform-d) δ 7.90 (s, 1H), 7.27 (s, 1H), 6.39 – 6.29 (m, 2H), 5.61 (s, 1H), 2.76 (s, 3H), 2.16 (d, J = 6.0 Hz, 3H).
364	CF ₃		(500 MHz, Chloroform-d) δ 7.99 (s, 1H), 7.72 (s, 1H), 7.37 (s, 1H), 5.37 (s, 1H).
365	CF ₃		(500 MHz, Chloroform-d) δ 7.57 (s, 1H), 6.95 (s, 1H).
366	CF ₃		(500 MHz, Chloroform-d) δ 9.53 (d, J = 1.5 Hz, 1H), 8.08 (d, J = 1.5 Hz, 1H), 7.24 (s, 1H), 5.86 (s, 1H), 3.78 (t, J = 7.5 Hz, 2H), 3.21 (t, J = 7.5 Hz, 2H).
367	CF ₃		(500 MHz, Chloroform-d) δ 9.63 (d, J = 1.5 Hz, 1H), 8.02 (d, J = 1.5 Hz, 1H), 7.46 – 7.29 (m, 3H), 7.23 (s, 1H), 5.80 (s, 1H), 3.88 (s, 2H).
368	CF ₃		(500 MHz, Chloroform-d) δ 8.03 (s, 1H), 7.37 (s, 1H), 6.50 (s, 1H), 3.27 (s, 6H), 2.97 (q, J = 8.0 Hz, 2H), 1.36 (t, J = 8.0 Hz, 3H).
369	CF ₃		(500 MHz, Chloroform-d) δ 9.95 (s, 1H), 7.26 (s, 1H), 5.43 (s, 1H), 4.34 (q, J = 8.0 Hz, 2H), 3.39 (s, 3H), 1.61 (t, J = 8.0 Hz, 3H).
370	CF ₃		(500 MHz, Chloroform-d) δ 8.27 – 8.06 (m, 2H), 8.04 – 7.94 (m, 2H), 7.84 – 7.70 (m, 1H), 7.55 – 7.50 (m, 2H), 7.09 (s, 1H), 5.52 (s, 1H).
371	CF ₃		(500 MHz, Chloroform-d) δ 8.23 – 7.96 (m, 2H), 7.82 – 7.71 (m, 3H), 7.62 – 6.51 (m, 1H), 7.09 (s, 1H), 5.47 (s, 1H).
372	CF ₃		(500 MHz, Chloroform-d) δ 8.18 – 7.93 (m, 2H), 7.69 – 7.55 (m, 2H), 7.23 – 7.16 (m, 1H), 7.10 (s, 1H), 6.98 – 6.91 (m, 1H), 5.47 (s, 1H), 3.87 (s, 3H).
373	CF ₃		(500 MHz, Chloroform-d) δ 8.04 – 7.80 (m, 2H), 7.64 – 7.55 (m, 1H), 7.31 – 7.26 (m, 2H), 7.14 – 7.09 (m, 2H), 5.52 (s, 1H), 3.87 (s, 3H).
374	CF ₃		(500 MHz, Chloroform-d) δ 8.76 (d, J = 1.5 Hz, 1H), 8.34 – 8.25 (m, 2H), 8.10 – 7.90 (m, 2H), 7.05 (s, 1H), 6.77 – 6.51 (m, 1H), 5.76 – 5.65 (m, 2H), 5.25 – 5.11 (m, 1H), 3.16 (s, 3H).
375	CF ₃		(500 MHz, Chloroform-d) δ 8.24 – 8.19 (m, 2H), 8.12 (d, J = 1.5 Hz, 1H), 7.87 – 7.63 (m, 2H), 7.11 (s, 1H), 5.33 (s, 1H), 3.95 (s, 3H).
376	CF ₃		(500 MHz, Chloroform-d) δ 8.21 – 8.16 (m, 1H), 7.94 – 7.85 (m, 1H), 7.77 – 7.55 (m, 2H), 7.42 – 7.31 (m, 2H), 7.09 (s, 1H), 5.52 (s, 1H), 1.94 – 1.82 (m, 1H), 1.23 – 1.14 (m, 2H), 0.96 – 0.87 (m, 2H).
377	CF ₃		(500 MHz, Chloroform-d) δ 8.63 – 8.51 (m, 1H), 8.06 – 7.99 (m, 2H), 7.90 – 7.84 (m, 1H), 7.81 – 7.76 (m, 2H), 7.07 (s, 1H), 6.11 (s, 1H), 2.65 (s, 3H).

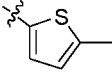
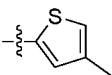
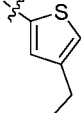
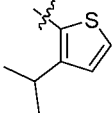
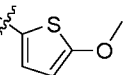
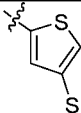
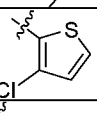
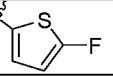
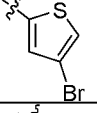
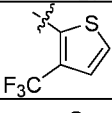
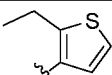
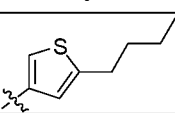
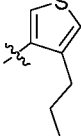
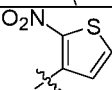
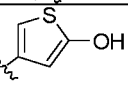
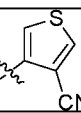
378	CF ₃		(500 MHz, Chloroform-d) δ 9.50 (s, 1H), 7.99 – 7.90 (m, 2H), 7.89 – 7.81 (m, 1H), 7.67 – 7.47 (m, 3H), 7.03 (s, 1H), 5.43 (s, 1H), 2.22 (s, 3H).
379	CF ₃		(500 MHz, Chloroform-d) δ 8.20 – 7.95 (m, 2H), 7.87 – 7.81 (m, 1H), 7.78 – 7.64 (m, 3H), 7.10 (s, 1H), 5.48 (s, 1H), 3.78 (t, J = 7.5 Hz, 2H), 3.07 (t, J = 7.5 Hz, 2H).
380	CF ₃		(500 MHz, Chloroform-d) δ 8.11 – 8.01 (m, 2H), 7.99 – 7.87 (m, 1H), 7.92 – 7.78 (m, 2H), 7.53 – 7.47 (m, 2H), 7.09 (s, 1H), 5.63 (s, 1H).
381	CF ₃		(500 MHz, Chloroform-d) δ 7.79 – 7.57 (m, 3H), 7.56 (d, J = 1.5 Hz, 1H), 7.20 – 7.13 (m, 2H), 7.08 (s, 1H), 5.55 (s, 1H), 5.00 (s, 1H), 2.82 (s, 3H).
382	CF ₃		(500 MHz, Chloroform-d) δ 8.11 – 8.02 (m, 2H), 8.00 – 7.90 (m, 2H), 7.78 – 7.65 (m, 2H), 7.50 (t, J = 73.5 Hz, 2H), 7.09 (s, 1H), 5.55 (s, 1H).
383	CF ₃		(500 MHz, Chloroform-d) δ 8.03 – 7.93 (m, 2H), 7.92 – 7.83 (m, 2H), 7.46 – 7.38 (m, 2H), 7.09 (s, 1H), 5.61 (s, 1H), 2.50 (s, 3H).
384	CF ₃		(500 MHz, Chloroform-d) δ 8.13 – 8.02 (m, 2H), 7.89 – 7.77 (m, 2H), 7.65 – 7.52 (m, 2H), 7.10 (s, 1H), 5.51 (s, 1H).
385	CF ₃		(500 MHz, Chloroform-d) δ 8.12 – 8.04 (m, 2H), 7.87 – 7.62 (d, J = 8.0 Hz, 4H), 7.07 (s, 1H), 5.26 (s, 1H).
386	CF ₃		(500 MHz, Chloroform-d) δ 8.57 (d, J = 1.5 Hz, 1H), 8.10 – 8.02 (m, 3H), 7.99 – 7.81 (m, 2H), 7.09 (s, 1H), 6.26 (d, J = 72.5 Hz, 1H), 5.53 (s, 1H).
387	CF ₃		(500 MHz, Chloroform-d) δ 8.33 – 8.23 (m, 2H), 8.09 – 7.98 (m, 2H), 7.10 (s, 1H), 6.34 – 6.22 (m, 1H), 5.50 (s, 1H), 3.95 (s, 3H), 3.90 (s, 3H).
388	CF ₃		(500 MHz, Chloroform-d) δ 8.11 – 8.00 (m, 2H), 7.91 – 7.78 (m, 2H), 7.47 – 7.37 (m, 2H), 7.05 (s, 1H), 5.51 (s, 1H), 3.51 (t, J = 7.5 Hz, 2H), 3.23 (s, 3H), 2.43 (t, J = 7.5 Hz, 2H).
389	CF ₃		(500 MHz, Chloroform-d) δ 8.15 – 8.03 (m, 1H), 7.87 – 7.78 (m, 2H), 7.61 – 7.44 (m, 2H), 7.10 – 7.01 (m, 2H), 6.12 (s, 2H), 5.52 (s, 1H), 3.29 (s, 3H).
390	CF ₃		(500 MHz, Chloroform-d) δ 8.42 (s, 1H), 8.27 (d, J = 1.5 Hz, 1H), 7.92 (d, J = 7.5 Hz, 1H), 7.50 (dd, J = 7.5, 1.5 Hz, 1H), 7.04 (s, 1H), 5.63 (s, 1H), 3.18 (s, 3H), 3.03 – 2.98 (m, 2H), 2.68 (s, 3H), 2.16 – 2.06 (m, 1H), 1.44 – 1.33 (m, 1H), 0.99 – 0.84 (m, 2H).
391	CF ₃		

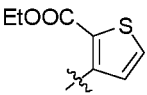
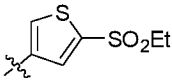
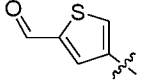
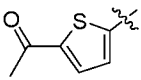
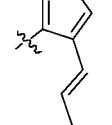
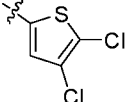
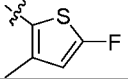
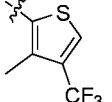
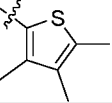
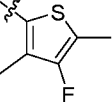
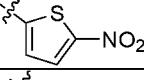
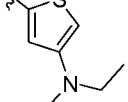
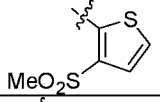
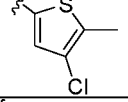
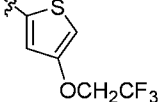
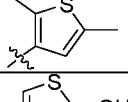
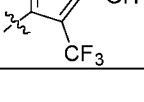
392	CF ₃		(500 MHz, Chloroform-d) δ 8.31 (d, J = 7.5 Hz, 1H), 8.10 (d, J = 7.5 Hz, 1H), 7.84 – 7.70 (m, 3H), 7.54 – 7.42 (m, 1H), 7.09 (s, 1H), 5.63 (s, 1H), 3.70 (s, 2H), 2.27 (s, 3H).
393	CF ₃		(500 MHz, Chloroform-d) δ 7.82 – 7.73 (m, 1H), 7.67 – 7.60 (m, 2H), 7.19 (d, J = 1.5 Hz, 1H), 7.07 (s, 1H), 5.40 (s, 1H), 3.81 (s, 2H), 2.52 (s, 3H), 2.35 (s, 3H), 2.27 (s, 3H).
394	CF ₃		(500 MHz, Chloroform-d) δ 8.30 – 8.13 (m, 2H), 7.85 – 7.76 (m, 2H), 7.69 – 7.62 (m, 2H), 7.09 (s, 1H), 5.43 (s, 1H), 4.53 (s, 2H), 3.95 (s, 2H), 3.28 (s, 3H).
395	CF ₃		(500 MHz, Chloroform-d) δ 8.42 – 8.37 (m, 1H), 7.54 (d, J = 1.5 Hz, 1H), 7.47 – 7.36 (m, 2H), 7.04 (s, 1H), 6.88 – 6.69 (m, 1H), 5.71 (s, 1H), 4.96 (s, 2H), 3.90 (s, 3H).
396	CF ₃		(500 MHz, Chloroform-d) δ 8.38 (d, J = 1.5 Hz, 1H), 8.18 (dd, J = 7.5, 1.5 Hz, 1H), 8.12 – 8.01 (m, 2H), 7.88 – 7.62 (m, 2H), 7.07 (s, 1H), 5.55 (s, 1H), 2.42 (s, 3H).
397	CF ₃		(500 MHz, Chloroform-d) δ 8.05 – 7.97 (m, 1H), 8.00 – 7.91 (m, 2H), 7.76 – 7.68 (m, 2H), 7.58 – 7.42 (m, 1H), 7.08 (s, 1H), 5.57 (s, 1H), 3.82 (s, 2H), 1.85 (s, 3H).
398	CF ₃		(500 MHz, Chloroform-d) δ 7.99 – 7.93 (m, 2H), 7.83 – 7.53 (m, 2H), 7.40 – 7.24 (m, 2H), 7.09 (s, 1H), 5.49 (d, J = 73.5 Hz, 1H), 5.20 (s, 1H).
399	CF ₃		
400	CF ₃		(500 MHz, Chloroform-d) δ 8.43 – 8.34 (m, 2H), 7.99 – 7.82 (m, 2H), 7.73 – 7.66 (m, 1H), 7.09 (s, 1H), 6.24 – 6.12 (m, 1H), 5.57 (s, 1H), 5.10 (s, 2H), 2.20 (s, 3H).
401	CF ₃		(500 MHz, Chloroform-d) δ 8.00 – 7.88 (m, 2H), 7.91 – 7.70 (m, 2H), 7.51 – 7.39 (m, 1H), 7.11 – 7.05 (m, 2H), 5.62 (s, 1H), 4.93 (s, 2H), 3.73 (s, 3H).
402	CF ₃		(500 MHz, Chloroform-d) δ 8.69 – 8.42 (m, 2H), 8.11 – 8.00 (m, 2H), 7.78 – 7.53 (m, 2H), 7.50 – 7.42 (m, 2H), 7.12 – 7.03 (m, 3H), 5.71 (s, 1H), 3.94 (hept, J = 6.5 Hz, 1H), 1.52 (d, J = 6.5 Hz, 6H).
403	CF ₃		(500 MHz, Chloroform-d) δ 8.71 – 8.63 (m, 1H), 8.34 – 8.20 (m, 2H), 8.13 – 8.04 (m, 2H), 7.88 – 7.79 (m, 1H), 7.10 (s, 1H), 5.72 – 5.50 (m, 1H), 5.44 (s, 1H), 4.48 (s, 2H), 2.72 – 2.50 (m, 2H), 2.39 (s, 3H).

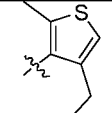
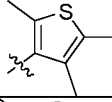
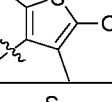
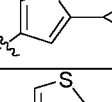
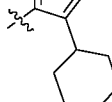
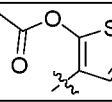
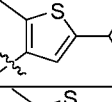
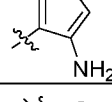
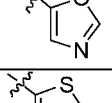
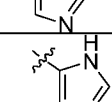
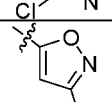
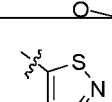
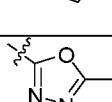
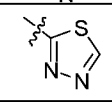
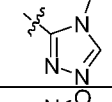
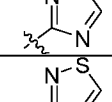
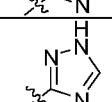
404	CF ₃		(500 MHz, Chloroform-d) δ 8.11 – 8.06 (m, 2H), 7.73 – 7.64 (m, 2H), 7.51 – 7.37 (m, 2H), 7.09 (s, 1H), 5.61 (s, 1H), 4.48 (s, 2H), 3.34 (s, 3H).
405	CF ₃		
406	CF ₃		(500 MHz, Chloroform-d) δ 8.06 (s, 1H), 7.74 – 7.64 (m, 2H), 7.42 – 7.29 (m, 2H), 7.09 (s, 1H), 5.64 (s, 1H), 5.24 (s, 2H), 5.00 (s, 2H), 4.27 (s, 2H), 3.70 (hept, J = 6.5 Hz, 1H), 3.10 (q, J = 8.0 Hz, 2H), 1.35 (t, J = 8.0 Hz, 3H), 1.02 (d, J = 6.5 Hz, 6H).
407	CF ₃		(500 MHz, Chloroform-d) δ 8.05 – 7.98 (m, 2H), 7.79 – 7.72 (m, 2H), 7.50 – 7.43 (m, 2H), 7.31 (s, 1H), 5.41 (s, 1H), 5.11 (s, 2H), 2.86 (s, 3H).
408	CF ₃		(500 MHz, Chloroform-d) δ 7.88 (d, J = 7.5 Hz, 1H), 7.72 – 7.64 (m, 2H), 7.63 (d, J = 7.5 Hz, 1H), 7.56 (d, J = 7.5 Hz, 1H), 7.09 (s, 1H), 5.51 (s, 1H), 3.81 (s, 2H), 3.64 – 3.47 (m, 1H), 2.94 (s, 3H), 1.83 – 1.71 (m, 3H), 1.71 – 1.57 (m, 2H), 1.57 – 1.37 (m, 5H).
409	CF ₃		(500 MHz, Chloroform-d) δ 7.68 – 7.55 (m, 2H), 7.41 – 7.31 (m, 3H), 7.28 – 7.19 (m, 1H), 7.09 (s, 1H), 6.06 (s, 2H), 5.55 (s, 1H), 3.45 (q, J = 8.0 Hz, 2H), 1.22 (t, J = 8.0 Hz, 3H).
410	CF ₃		(500 MHz, Chloroform-d) δ 8.10 – 8.00 (m, 2H), 7.94 – 7.81 (m, 1H), 7.79 – 7.65 (m, 2H), 7.49 – 7.33 (m, 1H), 7.09 (s, 1H), 5.56 (s, 1H), 5.11 (s, 2H), 4.67 (s, 2H), 2.59 (q, J = 8.0 Hz, 2H), 1.29 (s, 1H), 1.02 (t, J = 8.0 Hz, 3H).
411	CF ₃		
412	CF ₃		(500 MHz, Chloroform-d) δ 8.18 (d, J = 1.5 Hz, 1H), 8.02 (dd, J = 7.5, 1.5 Hz, 1H), 7.85 – 7.77 (m, 2H), 7.53 – 7.43 (m, 2H), 7.10 (s, 1H), 5.41 (s, 1H), 4.27 (s, 2H), 2.56 (s, 3H).
413	CF ₃		(500 MHz, Chloroform-d) δ 7.83 (dd, J = 2.5 Hz, 1H), 7.17 (d, J = 2.0 Hz, 2H), 6.80 (dd, J = 2.5, 2.0 Hz, 1H).
414	CF ₃		(500 MHz, Chloroform-d) δ 7.18 (s, 1H), 6.90 (d, J = 2.5 Hz, 1H), 6.11 (d, J = 2.5 Hz, 1H), 2.36 (s, 3H).
415	CF ₃		(500 MHz, Chloroform-d) δ 7.40 (s, 1H), 7.20 (s, 1H), 6.30 (s, 1H), 6.00 (s, 1H), 2.94 (hept, J = 6.5 Hz, 1H), 1.52 (d, J = 6.5 Hz, 6H).
416	CF ₃		(500 MHz, Chloroform-d) δ 7.35 (d, J = 2.5 Hz, 1H), 7.18 (s, 1H), 6.45 (d, J = 2.5 Hz, 1H), 2.66 (q, J = 8.0 Hz, 2H), 1.30 (t, J = 8.0 Hz, 3H).

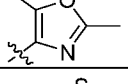
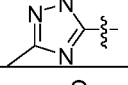
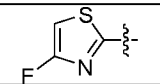
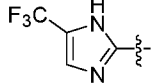
417	CF ₃		(500 MHz, Chloroform-d) δ 7.40 (d, J = 9.0 Hz, 1H), 7.20 (s, 1H), 6.30 (d, J = 8.5 Hz, 1H), 6.00 (s, 1H).
418	CF ₃		(500 MHz, Chloroform-d) δ 7.50 (s, 1H), 7.18 (s, 1H), 6.67 (s, 1H), 5.64 (s, 1H).
419	CF ₃		(500 MHz, Chloroform-d) δ 7.45 (d, J = 2.5 Hz, 1H), 7.15 (s, 1H), 6.76 (d, J = 2.5 Hz, 1H), 5.84 (s, 1H).
420	CF ₃		(500 MHz, Chloroform-d) δ 7.18 (s, 1H), 6.85 (d, J = 2.5 Hz, 1H), 5.80 (d, J = 2.5 Hz, 1H), 3.85 (s, 3H).
421	CF ₃		(500 MHz, Chloroform-d) δ 7.29 (d, J = 2.5 Hz, 1H), 7.20 (s, 1H), 7.06 (d, J = 2.5 Hz, 1H), 5.67 (s, 1H).
422	CF ₃		(500 MHz, Chloroform-d) δ 7.43 (d, J = 2.5 Hz, 1H), 7.30 (d, J = 2.5 Hz, 1H), 7.17 (s, 1H), 5.77 (s, 1H).
423	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 10.38 (s, 1H), 7.71 (d, J = 1.5 Hz, 1H), 7.47 (d, J = 1.5 Hz, 1H), 7.13 (s, 1H), 6.43 (s, 1H).
424	CF ₃		(500 MHz, Chloroform-d) δ 7.20 (d, J = 2.5 Hz, 1H), 7.15 (s, 1H), 6.42 (d, J = 2.5 Hz, 1H), 5.81 (s, 1H), 2.37 (s, 3H).
425	CF ₃		(500 MHz, Chloroform-d) δ 7.63 (s, 1H), 7.15 (s, 1H), 6.09 (s, 1H), 5.87 (s, 1H), 2.38 (t, J = 6.5 Hz, 2H), 1.86 – 1.71 (m, 2H), 1.00 (t, J = 8.0 Hz, 3H).
426	CF ₃		(500 MHz, Chloroform-d) δ 7.34 (s, 1H), 7.27 (s, 1H), 7.20 (s, 1H), 6.07 (s, 1H), 1.30 (s, 9H).
427	CF ₃		(500 MHz, Chloroform-d) δ 7.30 (d, J = 2.5 Hz, 1H), 7.16 (s, 1H), 6.32 (d, J = 2.5 Hz, 1H), 5.74 (s, 1H).
428	CF ₃		(500 MHz, Chloroform-d) δ 7.40 (s, 1H), 7.20 (s, 1H), 6.30 (d, J = 8.0 Hz, 1H), 6.00 (s, 1H).
429	CF ₃		(500 MHz, Chloroform-d) δ 7.60 (s, 1H), 7.53 (s, 1H), 7.24 (s, 1H), 5.52 (s, 1H).
430	CF ₃		(500 MHz, Chloroform-d) δ 8.99 (s, 1H), 8.25 (s, 1H), 7.20 (s, 1H), 6.90 (d, J = 7.5 Hz, 1H), 6.11 (d, J = 7.5 Hz, 1H), 2.87 (s, 3H).
431	CF ₃		(500 MHz, Chloroform-d) δ 7.59 (s, 1H), 7.15 (s, 1H), 6.40 (s, 1H), 5.88 (s, 1H), 2.43 (s, 3H).
432	CF ₃		(500 MHz, Chloroform-d) δ 7.24 (s, 1H), 7.20 (s, 1H), 7.10 (s, 1H), 6.00 (s, 1H), 1.50 – 1.37 (m, 1H), 1.12 – 1.02 (m, 2H), 0.82 – 0.72 (m, 2H).
433	CF ₃		(500 MHz, Chloroform-d) δ 7.18 (s, 1H), 6.70 (s, 1H), 6.44 (s, 1H), 5.87 (s, 1H), 5.66 (s, 1H).
434	CF ₃		(500 MHz, Chloroform-d) δ 8.40 (s, 1H), 7.73 (s, 1H), 7.19 (s, 1H).

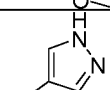
435	CF ₃		(500 MHz, Chloroform-d) δ 7.15 (s, 1H), 6.86 (d, J = 2.5 Hz, 1H), 6.17 (d, J = 2.5 Hz, 1H).
436	CF ₃		(500 MHz, Chloroform-d) δ 7.29 (d, J = 2.5 Hz, 1H), 7.23 – 7.18 (m, 2H), 3.91 (s, 3H).
437	CF ₃		(500 MHz, Chloroform-d) δ 7.47 (d, J = 2.5 Hz, 1H), 7.16 (s, 1H), 6.49 (d, J = 2.5 Hz, 1H), 2.99 (s, 6H).
438	CF ₃		
439	CF ₃		(500 MHz, Chloroform-d) δ 7.17 (s, 1H), 6.04 (s, 1H), 2.36 (s, 3H), 2.26 (s, 3H).
440	CF ₃		(500 MHz, Chloroform-d) δ 7.56 (s, 1H), 7.18 (s, 1H), 7.06 (s, 1H), 6.83 – 6.67 (m, 1H), 5.67 – 5.46 (m, 2H).
441	CF ₃		¹ H NMR (500 MHz, Chloroform-d) δ 7.17 (s, 1H), 6.57 (s, 1H), 5.32 (s, 1H), 2.19 (s, 3H).
442	CF ₃		(500 MHz, Chloroform-d) δ 7.17 (s, 1H), 2.32 (s, 3H), 2.19 (s, 3H), 2.05 (s, 3H).
443	CF ₃		(500 MHz, Chloroform-d) δ 7.27 (d, J = 2.5 Hz, 1H), 7.15 (s, 1H), 6.37 (d, J = 2.5 Hz, 1H), 5.78 (s, 1H), 4.48 (s, 2H), 3.38 (s, 3H).
444	CF ₃		(500 MHz, Chloroform-d) δ 7.27 (s, 1H), 7.15 (s, 1H), 5.78 (s, 1H), 3.88 (q, J = 8.0 Hz, 2H), 3.08 (s, 3H), 1.48 (t, J = 8.0 Hz, 3H).
445	CF ₃		(500 MHz, Chloroform-d) δ 7.64 (s, 1H), 7.26 (s, 1H), 7.19 (s, 1H), 6.09 – 6.00 (m, 1H), 5.74 (s, 1H), 2.95 – 2.89 (m, 2H).
446	CF ₃		(500 MHz, Chloroform-d) δ 7.16 (s, 1H), 5.73 (s, 1H), 2.30 (s, 3H), 2.24 (s, 3H), 2.05 (s, 3H).
447	CF ₃		(500 MHz, Chloroform-d) δ 7.40 (s, 1H), 7.20 (s, 1H), 6.00 (s, 1H).
448	CF ₃		(500 MHz, Chloroform-d) δ 7.21 (s, 2H), 5.97 (s, 1H), 2.31 (s, 3H), 2.05 (s, 3H).
449	CF ₃		(500 MHz, Chloroform-d) δ 9.78 (s, 1H), 7.64 (d, J = 2.5 Hz, 1H), 7.43 (s, 1H), 6.56 (d, J = 2.5 Hz, 1H), 3.16 (s, 3H).
450	CF ₃		(500 MHz, Chloroform-d) δ 7.17 (s, 1H), 7.05 (s, 1H), 5.74 (s, 1H), 5.39 (s, 1H), 2.34 (s, 3H).
451	CF ₃		(500 MHz, Chloroform-d) δ 8.50 (s, 1H), 8.34 (s, 1H), 7.66 (s, 1H), 7.44 (s, 1H), 2.55 (s, 3H).
452	CF ₃		(500 MHz, Chloroform-d) δ 8.69 (s, 1H), 7.25 – 7.17 (m, 2H), 7.09 (d, J = 2.5 Hz, 1H).
453	CF ₃		(500 MHz, Chloroform-d) δ 7.99 (s, 1H), 7.50 (s, 1H), 7.21 (s, 1H), 6.41 (s, 1H), 3.01 (s, 1H).

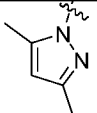
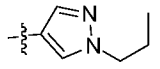
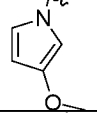
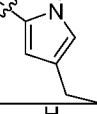
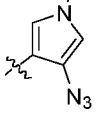
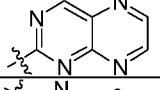
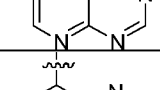
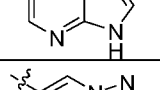
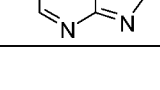
454	CF ₃		(500 MHz, Chloroform-d) δ 7.56 – 7.44 (m, 2H), 7.24 – 7.17 (m, 2H).
455	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.05 (s, 1H), 7.66 (d, <i>J</i> = 2.5 Hz, 1H), 7.12 (d, <i>J</i> = 2.5 Hz, 1H), 6.88 (s, 1H), 2.40 (s, 3H).
456	CF ₃		(500 MHz, Chloroform-d) δ 7.46 (s, 1H), 7.20 (s, 2H), 7.09 (s, 1H), 2.30 (s, 3H).
457	CF ₃		(500 MHz, Chloroform-d) δ 7.46 (s, 1H), 7.19 (s, 1H), 7.09 (s, 1H), 2.71 (q, <i>J</i> = 8.0 Hz, 2H), 1.26 (t, <i>J</i> = 8.0 Hz, 3H).
458	CF ₃		(500 MHz, Chloroform-d) δ 7.46 (d, <i>J</i> = 2.5 Hz, 1H), 7.19 (s, 1H), 7.09 (d, <i>J</i> = 2.5 Hz, 1H), 2.71 (hept, <i>J</i> = 8.0 Hz, 1H), 1.26 (d, <i>J</i> = 8.0 Hz, 6H).
459	CF ₃		(500 MHz, Chloroform-d) δ 7.24 (d, <i>J</i> = 2.5 Hz, 1H), 7.15 (s, 1H), 6.29 (d, <i>J</i> = 2.5 Hz, 1H), 5.74 (s, 1H), 3.85 (s, 3H).
460	CF ₃		(500 MHz, Chloroform-d) δ 7.60 (s, 1H), 7.34 (s, 1H), 7.09 (s, 1H), 2.41 (s, 3H).
461	CF ₃		(500 MHz, Chloroform-d) δ 7.52 (d, <i>J</i> = 2.5 Hz, 1H), 7.33 (d, <i>J</i> = 2.5 Hz, 1H), 7.17 (s, 1H), 5.75 (s, 1H).
462	CF ₃		(500 MHz, Chloroform-d) δ 7.22 – 7.13 (m, 2H), 6.72 – 6.57 (m, 1H), 6.00 (s, 1H).
463	CF ₃		(500 MHz, Chloroform-d) δ 7.94 (s, 1H), 7.38 (s, 1H), 7.20 (s, 1H), 7.10 (s, 1H).
464	CF ₃		(500 MHz, Chloroform-d) δ 7.61 (d, <i>J</i> = 2.5 Hz, 1H), 7.46 (d, <i>J</i> = 2.5 Hz, 1H), 7.18 (s, 1H), 5.85 (s, 1H).
465	CF ₃		(500 MHz, Chloroform-d) δ 7.42 (d, <i>J</i> = 2.5 Hz, 1H), 7.36 (s, 1H), 7.20 (d, <i>J</i> = 2.5 Hz, 1H), 7.19 (s, 1H), 5.74 (s, 1H).
466	CF ₃		(500 MHz, Chloroform-d) δ 7.33 (d, <i>J</i> = 2.5 Hz, 1H), 7.16 (s, 1H), 7.08 (d, <i>J</i> = 2.5 Hz, 1H), 6.00 (s, 1H), 2.86 (q, <i>J</i> = 8.0 Hz, 2H), 1.32 (t, <i>J</i> = 8.0 Hz, 3H).
467	CF ₃		(500 MHz, Chloroform-d) δ 7.56 (s, 1H), 7.18 (s, 1H), 6.92 (s, 1H), 5.74 (s, 1H), 2.61 (t, <i>J</i> = 7.5 Hz, 2H), 1.51 – 1.37 (m, 4H), 0.96 (t, <i>J</i> = 7.5 Hz, 3H).
468	CF ₃		(500 MHz, Chloroform-d) δ 7.41 (s, 1H), 7.13 (s, 1H), 7.03 (s, 1H), 5.74 (s, 1H), 2.65 (t, <i>J</i> = 7.5 Hz, 2H), 1.74 – 1.61 (m, 2H), 0.99 (t, <i>J</i> = 8.0 Hz, 3H).
469	CF ₃		(500 MHz, Chloroform-d) δ 7.93 (d, <i>J</i> = 2.5 Hz, 1H), 7.33 (d, <i>J</i> = 2.5 Hz, 1H), 7.11 (s, 1H), 5.65 (s, 1H).
470	CF ₃		(500 MHz, Chloroform-d) δ 7.18 (s, 1H), 6.32 (s, 1H), 6.27 (s, 1H), 5.95 (s, 1H), 5.84 (s, 1H).
471	CF ₃		(500 MHz, Chloroform-d) δ 7.85 (s, 1H), 7.56 (s, 1H), 7.17 (s, 1H), 5.69 (s, 1H).

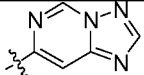
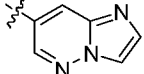
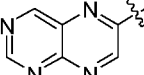
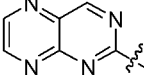
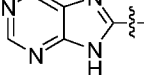
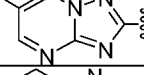
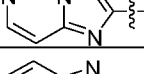
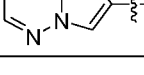
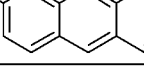
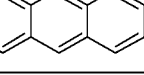
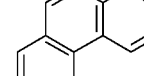
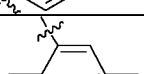
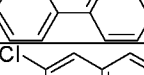
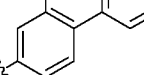
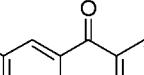
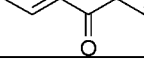
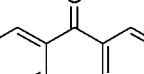
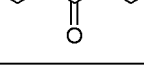
472	CF ₃		(500 MHz, Chloroform-d) δ 7.68 (d, J = 2.5 Hz, 1H), 7.31 (d, J = 2.5 Hz, 1H), 7.15 (s, 1H), 5.75 (s, 1H), 4.31 (q, J = 7.0 Hz, 2H), 1.33 (t, J = 7.0 Hz, 3H).
473	CF ₃		(500 MHz, Chloroform-d) δ 9.16 (s, 1H), 8.50 (s, 1H), 7.13 (s, 1H), 5.86 (s, 1H), 3.45 (q, J = 6.5 Hz, 2H), 1.43 (t, J = 6.5 Hz, 3H).
474	CF ₃		(500 MHz, Chloroform-d) δ 9.87 (s, 1H), 8.30 (s, 1H), 7.84 (s, 1H), 7.14 (s, 1H), 5.93 (s, 1H).
475	CF ₃		(500 MHz, Chloroform-d) δ 7.80 (d, J = 2.5 Hz, 1H), 7.73 (d, J = 2.5 Hz, 1H), 7.17 (s, 1H), 5.90 (s, 1H), 2.51 (s, 3H).
476	CF ₃		(500 MHz, Chloroform-d) δ 7.69 (s, 1H), 7.17 (s, 1H), 6.30 – 6.23 (m, 1H), 6.19 (s, 1H), 6.10 – 6.01 (m, 1H), 1.70 (d, J = 6.5 Hz, 3H).
477	CF ₃		(500 MHz, Chloroform-d) δ 7.50 (s, 1H), 7.20 (s, 1H), 7.07 (s, 1H).
478	CF ₃		(500 MHz, Chloroform-d) δ 7.20 (s, 1H), 6.63 (d, J = 7.5 Hz, 1H), 6.00 (s, 1H), 2.23 (s, 3H).
479	CF ₃		(500 MHz, Chloroform-d) δ 7.92 (s, 1H), 7.20 (s, 1H), 6.64 (s, 1H), 2.40 (s, 3H).
480	CF ₃		(500 MHz, Chloroform-d) δ 7.19 (s, 1H), 6.70 (s, 1H), 2.46 (s, 3H), 2.36 (s, 3H), 2.30 (s, 3H).
481	CF ₃		(500 MHz, Chloroform-d) δ 7.20 (s, 1H), 6.00 (s, 1H), 2.44 (s, 3H), 2.24 (s, 3H).
482	CF ₃		(500 MHz, Chloroform-d) δ 8.22 (d, J = 2.5 Hz, 1H), 7.71 (d, J = 2.5 Hz, 1H), 7.21 (s, 1H), 7.15 (s, 1H).
483	CF ₃		(500 MHz, Chloroform-d) δ 7.20 (s, 1H), 7.10 (s, 1H), 6.86 (s, 1H), 6.05 (s, 1H), 3.26 (q, J = 8.0 Hz, 2H), 2.98 (s, 3H), 1.19 (t, J = 8.0 Hz, 3H).
484	CF ₃		(500 MHz, Chloroform-d) δ 8.60 (s, 1H), 7.85 (d, J = 2.5 Hz, 1H), 7.76 (d, J = 2.5 Hz, 1H), 7.37 (s, 1H), 3.15 (s, 3H).
485	CF ₃		(500 MHz, Chloroform-d) δ 7.50 (s, 1H), 7.20 (s, 1H), 7.15 (s, 1H), 2.52 (s, 3H).
486	CF ₃		(500 MHz, Chloroform-d) δ 7.25 (s, 1H), 7.22 – 7.16 (m, 2H), 6.55 (s, 1H), 4.46 (q, J = 9.5 Hz, 2H).
487	CF ₃		(500 MHz, Chloroform-d) δ 7.25 (s, 1H), 7.22 (s, 1H), 6.55 (s, 1H), 2.31 (s, 3H), 2.21 (s, 3H).
488	CF ₃		(500 MHz, Chloroform-d) δ 7.13 (s, 1H), 6.19 (s, 1H), 5.72 (s, 1H), 3.52 (s, 1H).

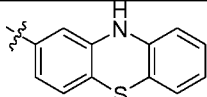
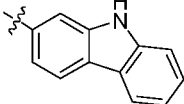
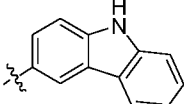
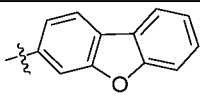
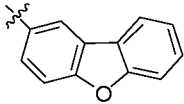
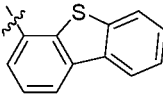
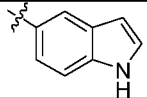
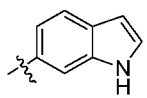
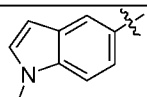
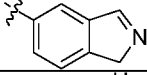
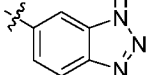
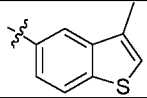
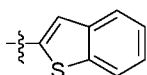
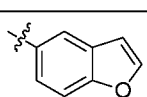
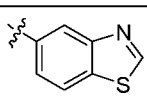
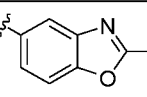
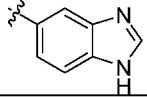
489	CF ₃		(500 MHz, Chloroform-d) δ 7.13 (s, 1H), 6.84 (s, 1H), 5.65 (s, 1H), 2.71 (q, J = 8.0 Hz, 2H), 2.41 (s, 3H), 1.26 (t, J = 8.0 Hz, 3H).
490	CF ₃		(500 MHz, Chloroform-d) δ 7.13 (s, 1H), 5.68 (s, 1H), 3.52 (s, 1H), 2.40 (s, 3H), 2.30 (s, 3H), 2.26 (s, 3H).
491	CF ₃		(500 MHz, Chloroform-d) δ 7.13 (s, 1H), 5.68 (s, 1H), 2.40 (d, J = 7.1 Hz, 6H), 2.26 (s, 3H).
492	CF ₃		(500 MHz, Chloroform-d) δ 8.03 (s, 1H), 7.21 (s, 1H), 7.13 (s, 1H), 6.00 (s, 1H), 1.50 – 1.41 (m, 1H), 0.91 – 0.79 (m, 4H).
493	CF ₃		(500 MHz, Chloroform-d) δ 7.33 (s, 1H), 7.24 (s, 1H), 7.14 (s, 1H), 6.00 (s, 1H), 2.32 – 2.22 (m, 1H), 2.04 – 1.91 (m, 4H), 1.78 – 1.62 (m, 6H).
494	CF ₃		(500 MHz, Chloroform-d) δ 7.38 (d, J = 2.5 Hz, 1H), 7.18 (s, 1H), 5.47 (d, J = 2.5 Hz, 1H), 5.30 (s, 1H), 2.21 (s, 3H).
495	CF ₃		(500 MHz, Chloroform-d) δ 7.16 (s, 1H), 6.88 (s, 1H), 5.97 (s, 1H), 3.31 (hept, J = 6.5 Hz, 1H), 2.37 (s, 3H), 1.30 (d, J = 6.5 Hz, 6H).
496	CF ₃		(500 MHz, Chloroform-d) δ 7.18 (s, 1H), 7.06 (s, 1H), 5.88 (s, 1H), 3.50 (s, 2H), 2.46 (s, 3H).
497	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 11.71 (s, 1H), 8.13 (s, 1H), 7.76 (s, 1H), 6.88 (s, 1H).
498	CF ₃		(500 MHz, Chloroform-d) δ 8.35 (s, 1H), 7.20 (s, 1H), 6.98 (s, 1H), 2.77 (s, 3H).
499	CF ₃		(500 MHz, Chloroform-d) δ 7.98 (s, 1H), 7.35 (s, 1H), 7.20 (s, 1H).
500	CF ₃		(500 MHz, Chloroform-d) δ 9.43 (s, 1H), 7.20 (s, 1H), 6.82 (s, 1H), 4.00 (s, 3H).
501	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 10.60 (s, 1H), 8.11 (d, J = 2.5 Hz, 1H), 7.37 (d, J = 2.5 Hz, 1H), 6.89 (s, 1H).
502	CF ₃		(500 MHz, Chloroform-d) δ 7.12 (s, 1H), 5.79 (s, 1H), 2.46 (s, 3H).
503	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 11.73 (s, 1H), 9.42 (s, 1H), 6.84 (s, 1H).
504	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.25 (s, 1H), 9.12 (s, 1H), 6.89 (s, 1H), 3.79 (s, 3H).
505	CF ₃		(500 MHz, Chloroform-d) δ 7.12 (s, 1H), 5.71 (s, 1H).
506	CF ₃		(500 MHz, Chloroform-d) δ 9.35 (s, 1H), 7.10 (s, 1H).
507	CF ₃		(500 MHz, Chloroform-d) δ 8.11 (s, 1H), 7.18 (s, 1H).

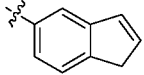
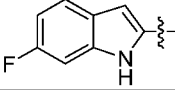
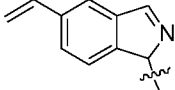
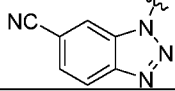
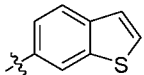
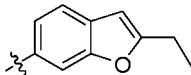
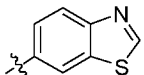
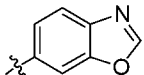
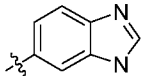
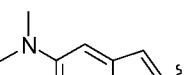
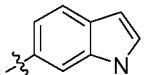
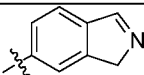
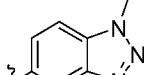
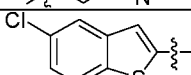
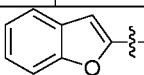
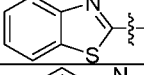
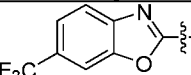
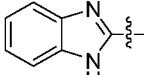
508	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.34 (s, 1H), 8.23 (s, 1H), 6.82 (s, 1H).
509	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.19 (s, 1H), 8.30 (s, 1H), 6.79 (s, 1H).
510	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.44 (s, 1H), 7.17 (s, 1H).
511	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.15 (s, 1H), 5.75 (s, 1H), 2.54 (s, 3H), 2.49 (s, 3H).
512	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.67 (s, 1H), 9.20 (s, 1H), 8.10 (s, 1H), 6.88 (s, 1H).
513	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.85 (s, 1H), 7.30 (s, 1H), 7.18 (s, 1H).
514	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.38 (s, 1H), 8.18 (s, 1H), 8.10 (s, 1H), 7.12 (s, 1H).
515	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.01 (s, 1H), 8.72 (s, 1H), 7.89 (s, 1H), 6.94 (s, 1H).
516	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 9.14 (s, 1H), 7.08 (s, 1H).
517	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 9.32 (s, 1H), 7.11 (s, 1H), 5.77 (s, 1H).
518	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.19 (s, 1H), 2.54 (s, 3H).
519	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.59 (s, 1H), 8.19 (s, 1H), 6.84 (s, 1H).
520	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.73 (s, 1H), 9.49 (s, 1H), 6.82 (s, 1H).
521	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.16 (s, 1H), 2.68 (s, 3H).
522	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.88 (s, 1H), 7.92 (d, <i>J</i> = 2.5 Hz, 1H), 7.37 (d, <i>J</i> = 2.5 Hz, 1H), 6.87 (s, 1H).
523	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.20 (s, 1H), 6.89 (d, <i>J</i> = 7.5 Hz, 1H), 6.00 (s, 1H).
524	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.31 (s, 1H), 7.19 (s, 1H).
525	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.11 (s, 1H), 8.74 (d, <i>J</i> = 2.5 Hz, 1H), 7.26 (d, <i>J</i> = 2.5 Hz, 1H), 6.88 (s, 1H).
526	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.47 (s, 1H), 8.72 (d, <i>J</i> = 2.0 Hz, 1H), 7.40 (d, <i>J</i> = 2.0 Hz, 1H), 6.85 (s, 1H).
527	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 9.48 (s, 2H), 7.07 (s, 1H), 5.93 (s, 1H).

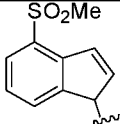
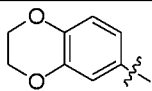
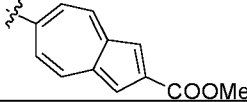
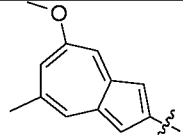
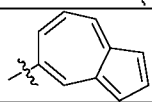
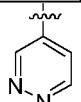
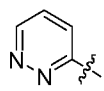
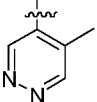
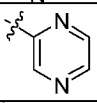
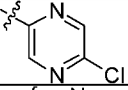
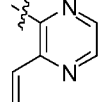
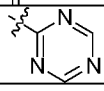
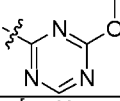
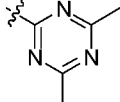
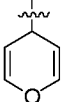
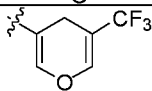
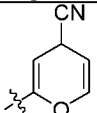
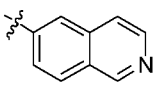
528	CF ₃		(500 MHz, Chloroform-d) δ 8.58 (s, 1H), 8.37 (s, 1H), 7.10 (s, 1H), 5.93 (s, 1H).
529	CF ₃		(500 MHz, Chloroform-d) δ 7.75 (d, J = 2.5 Hz, 1H), 7.15 (s, 1H), 6.76 (d, J = 2.5 Hz, 1H), 5.95 (s, 1H).
530	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.41 (s, 1H), 8.81 (d, J = 2.5 Hz, 1H), 8.04 (s, 1H), 7.69 (d, J = 2.5 Hz, 1H), 6.74 (s, 1H).
531	CF ₃		(500 MHz, Chloroform-d) δ 7.29 (s, 2H), 7.22 (s, 1H).
532	CF ₃		(500 MHz, Chloroform-d) δ 7.33 (d, J = 2.5 Hz, 1H), 7.18 (s, 1H), 6.77 (d, J = 2.5 Hz, 1H).
533	CF ₃		(500 MHz, Chloroform-d) δ 7.88 (d, J = 2.5 Hz, 1H), 7.53 (d, J = 2.0 Hz, 1H), 7.26 (s, 1H), 6.62 (dd, J = 2.5, 2.0 Hz, 1H), 5.93 (s, 1H).
534	CF ₃		(500 MHz, Chloroform-d) δ 7.15 (s, 1H), 2.34 (s, 3H), 2.28 (s, 3H).
535	CF ₃		(500 MHz, Chloroform-d) δ 7.55 (s, 1H), 7.17 (s, 1H), 4.01 (s, 3H).
536	CF ₃		(500 MHz, Chloroform-d) δ 7.19 (s, 1H), 7.15 (s, 1H), 2.17 (s, 3H).
537	CF ₃		(500 MHz, Chloroform-d) δ 7.44 (s, 1H), 7.36 (s, 1H), 7.27 (s, 1H), 5.93 (s, 1H).
538	CF ₃		(500 MHz, Chloroform-d) δ 7.48 (s, 1H), 7.15 (s, 1H), 2.66 (q, J = 8.0 Hz, 2H), 1.30 (t, J = 8.0 Hz, 3H).
539	CF ₃		(500 MHz, Chloroform-d) δ 7.47 (s, 1H), 7.15 (s, 1H), 2.60 (s, 3H).
540	CF ₃		(500 MHz, Chloroform-d) δ 7.18 (s, 1H), 6.42 (s, 1H), 3.86 (s, 3H), 2.35 (s, 3H).
541	CF ₃		(500 MHz, Chloroform-d) δ 7.51 (d, J = 2.5 Hz, 1H), 7.26 (s, 1H), 6.13 (d, J = 2.5 Hz, 1H), 5.93 (s, 1H), 2.38 (s, 3H).
542	CF ₃		(500 MHz, Chloroform-d) δ 7.16 (s, 1H), 7.05 (s, 1H).
543	CF ₃		(500 MHz, Chloroform-d) δ 7.21 (s, 1H), 2.56 (s, 6H).
544	CF ₃		(500 MHz, Chloroform-d) δ 7.18 (s, 1H), 2.22 (s, 3H), 2.12 (s, 3H).

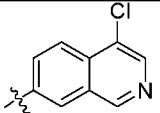
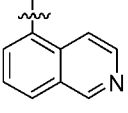
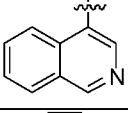
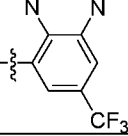
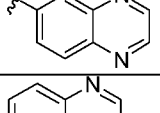
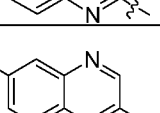
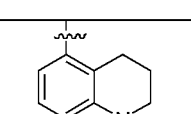
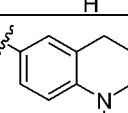
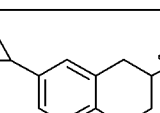
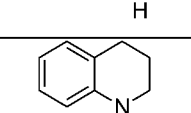
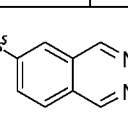
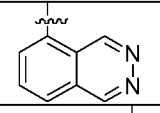
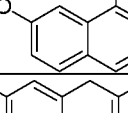
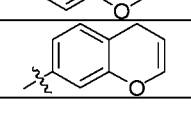
545	CF ₃		(500 MHz, Chloroform-d) δ 7.26 (s, 1H), 6.07 (s, 1H), 5.93 (s, 1H), 2.40 (s, 3H), 1.75 (s, 3H).
546	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.03 (s, 1H), 8.55 (s, 1H), 8.23 (s, 1H), 7.47 (s, 1H), 4.17 (t, <i>J</i> = 6.5 Hz, 2H), 1.83 – 1.66 (m, 2H), 0.85 (t, <i>J</i> = 7.5 Hz, 3H).
547	CF ₃		(500 MHz, Chloroform-d) δ 7.15 (s, 1H), 7.01 – 6.81 (m, 2H), 6.37 – 6.23 (m, 1H), 5.92 (s, 1H).
548	CF ₃		(500 MHz, Chloroform-d) δ 8.18 (s, 1H), 7.15 (s, 1H), 7.07 (s, 1H), 6.88 (d, <i>J</i> = 2.5 Hz, 1H), 6.33 (d, <i>J</i> = 2.5 Hz, 1H), 5.81 (s, 1H).
549	CF ₃		(500 MHz, Chloroform-d) δ 7.33 – 7.21 (m, 2H), 7.13 (s, 1H), 6.33 – 6.21 (m, 2H), 5.93 (s, 1H).
550	CF ₃		(500 MHz, Chloroform-d) δ 8.80 (s, 1H), 7.19 (s, 1H), 7.05 (d, <i>J</i> = 2.5 Hz, 1H), 6.55 (d, <i>J</i> = 2.5 Hz, 1H), 5.39 (s, 1H).
551	CF ₃		(500 MHz, Chloroform-d) δ 8.07 (s, 1H), 7.20 (s, 1H), 6.74 (s, 1H), 6.66 (s, 1H), 6.00 (s, 1H), 2.15 (s, 3H).
552	CF ₃		(500 MHz, Chloroform-d) δ 7.37 (d, <i>J</i> = 2.5 Hz, 1H), 7.13 (s, 1H), 6.43 (s, 1H), 5.93 (s, 1H), 5.82 (d, <i>J</i> = 2.5 Hz, 1H), 3.85 (s, 3H).
553	CF ₃		(500 MHz, Chloroform-d) δ 7.19 (s, 1H), 6.45 (s, 1H), 6.32 – 6.26 (m, 2H), 3.71 (s, 3H), 2.63 (q, <i>J</i> = 8.0 Hz, 2H), 1.25 (t, <i>J</i> = 8.0 Hz, 3H).
554	CF ₃		(500 MHz, Chloroform-d) δ 7.92 (s, 1H), 7.21 (s, 1H), 6.58 (s, 1H), 5.94 (s, 1H), 5.86 (s, 1H), 2.30 (s, 3H).
555	CF ₃		(500 MHz, Chloroform-d) δ 7.24 (s, 1H), 6.94 (d, <i>J</i> = 2.5 Hz, 1H), 6.24 (dd, <i>J</i> = 2.5, 2.0 Hz, 1H), 6.09 (d, <i>J</i> = 2.0 Hz, 1H), 5.93 (s, 1H), 2.21 (s, 3H).
556	CF ₃		(500 MHz, Chloroform-d) δ 8.50 (s, 1H), 7.22 (s, 1H), 6.54 (d, <i>J</i> = 2.5 Hz, 1H), 6.00 (d, <i>J</i> = 2.5 Hz, 1H), 5.74 (s, 1H), 2.33 (s, 3H).
557	CF ₃		(500 MHz, Chloroform-d) δ 7.87 (s, 1H), 7.19 (s, 1H), 6.67 (d, <i>J</i> = 2.5 Hz, 1H), 6.18 (s, 1H), 6.05 (d, <i>J</i> = 2.5 Hz, 1H), 2.42 (s, 3H).
558	CF ₃		
559	CF ₃		(500 MHz, Chloroform-d) δ 9.53 (s, 1H), 8.99 – 8.88 (m, 2H), 7.29 (s, 1H).
560	CF ₃		(500 MHz, Chloroform-d) δ 9.61 (s, 1H), 9.55 (s, 1H), 9.41 (s, 1H), 7.28 (s, 1H), 5.74 (s, 1H).
561	CF ₃		(500 MHz, Chloroform-d) δ 9.55 (s, 1H), 8.63 (s, 1H), 7.36 (s, 1H).
562	CF ₃		(500 MHz, Chloroform-d) δ 9.39 (d, <i>J</i> = 1.5 Hz, 1H), 9.23 (d, <i>J</i> = 1.5 Hz, 1H), 8.57 (s, 1H), 7.28 (s, 1H), 5.94 (s, 1H).

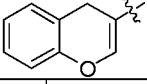
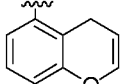
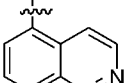
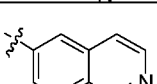
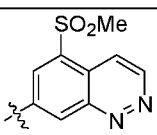
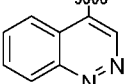
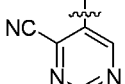
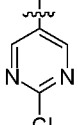
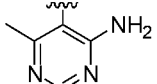
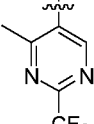
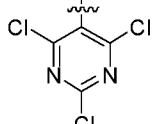
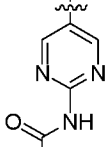
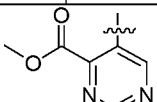
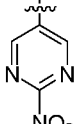
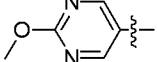
563	CF ₃		(500 MHz, Chloroform-d) δ 9.99 (s, 1H), 8.78 (s, 1H), 7.87 (s, 1H), 7.29 (s, 1H), 5.54 (s, 1H).
564	CF ₃		(500 MHz, Chloroform-d) δ 9.23 (d, J = 1.5 Hz, 1H), 7.84 (d, J = 1.5 Hz, 1H), 7.53 (d, J = 2.5 Hz, 1H), 7.28 (s, 1H), 7.22 (d, J = 2.5 Hz, 1H), 5.92 (s, 1H).
565	CF ₃		(500 MHz, Chloroform-d) δ 9.61 (s, 1H), 9.55 (s, 1H), 9.42 (s, 1H), 7.28 (s, 1H), 5.74 (s, 1H).
566	CF ₃		(500 MHz, Chloroform-d) δ 9.53 (s, 1H), 8.99 – 8.88 (m, 2H), 7.29 (s, 1H), 5.34 (s, 1H).
567	CF ₃		(500 MHz, Chloroform-d) δ 9.35 (s, 1H), 8.25 (s, 1H), 7.25 (s, 1H).
568	CF ₃		(500 MHz, Chloroform-d) δ 8.75 (q, J = 1.5 Hz, 1H), 8.35 (q, J = 1.5 Hz, 1H), 7.28 (s, 1H), 2.39 (s, 3H).
569	CF ₃		(500 MHz, Chloroform-d) δ 9.84 (s, 1H), 8.75 (d, J = 5.5 Hz, 1H), 7.56 (d, J = 5.5 Hz, 1H), 7.28 (s, 1H).
570	CF ₃		(500 MHz, Chloroform-d) δ 8.91 (dd, J = 5.5, 1.5 Hz, 1H), 7.70 (dd, J = 7.5, 5.5 Hz, 1H), 7.49 (dd, J = 7.5, 1.5 Hz, 1H), 7.43 (s, 1H), 7.28 (s, 1H).
571	CF ₃		(500 MHz, Chloroform-d) δ 8.45 – 8.36 (m, 3H), 8.24 – 8.01 (m, 3H), 7.89 – 7.79 (m, 1H), 7.54 – 7.45 (m, 2H), 7.10 (s, 1H), 5.56 (s, 1H).
572	CF ₃		(500 MHz, Chloroform-d) δ 8.95 – 8.91 (m, 1H), 8.59 – 8.55 (m, 1H), 8.37 – 8.30 (m, 1H), 8.22 – 8.12 (m, 2H), 7.92 – 7.74 (m, 3H), 7.11 (s, 1H), 5.55 (s, 1H).
573	CF ₃		(500 MHz, Chloroform-d) δ 8.86 – 8.31 (m, 3H), 8.04 – 7.90 (m, 3H), 7.75 – 7.68 (m, 2H), 7.63 – 7.55 (m, 1H), 7.10 (s, 1H), 5.52 (s, 1H).
574	CF ₃		(500 MHz, Chloroform-d) δ 9.08 – 8.84 (m, 1H), 8.12 – 7.91 (m, 4H), 7.74 – 7.58 (m, 4H), 7.10 (s, 1H), 5.66 (s, 1H).
575	CF ₃		(500 MHz, Chloroform-d) δ 8.90 – 8.84 (m, 2H), 8.58 – 8.37 (m, 2H), 7.91 – 7.80 (m, 2H), 7.68 – 7.63 (m, 2H), 7.10 (s, 1H), 5.61 (s, 1H).
576	CF ₃		(500 MHz, Chloroform-d) δ 8.51 (d, J = 2.0 Hz, 1H), 8.32 – 8.26 (m, 3H), 7.89 – 7.80 (m, 3H), 7.03 (s, 1H), 5.87 (s, 1H).
577	CF ₃		(500 MHz, Chloroform-d) δ 8.43 (d, J = 2.0 Hz, 1H), 8.26 – 8.06 (m, 2H), 7.95 – 7.90 (m, 1H), 7.45 – 7.39 (m, 2H), 7.08 (s, 1H), 5.71 (s, 1H), 2.30 (s, 3H).
578	CF ₃		(500 MHz, Chloroform-d) δ 8.55 – 8.45 (m, 2H), 8.27 – 8.20 (m, 2H), 8.11 – 7.97 (m, 2H), 7.72 – 7.54 (m, 2H), 7.10 (s, 1H), 5.50 (s, 1H).
579	CF ₃		(500 MHz, Chloroform-d) δ 8.61 (d, J = 1.5 Hz, 1H), 8.39 (d, J = 7.5 Hz, 1H), 8.14 – 8.10 (m, 3H), 7.80 – 7.67 (m, 2H), 7.05 (s, 1H), 5.75 (s, 1H).
580	CF ₃		(500 MHz, Chloroform-d) δ 9.42 – 9.13 (m, 2H), 8.59 – 8.49 (m, 2H), 7.97 – 7.88 (m, 2H), 7.68 – 7.56 (m, 1H), 7.28 (s, 1H), 5.76 (s, 1H).

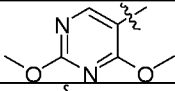
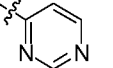
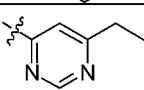
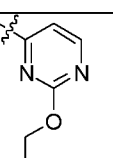
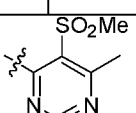
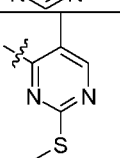
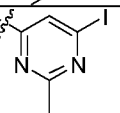
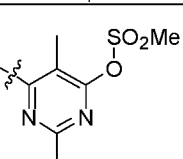
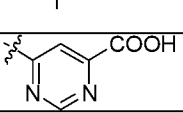
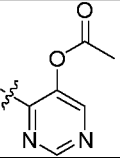
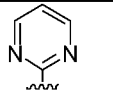
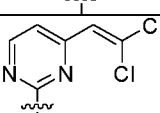
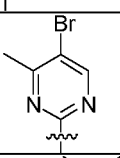
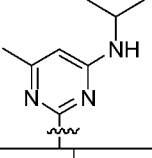
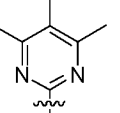
581	CF ₃		(500 MHz, Chloroform-d) δ 9.08 (s, 1H), 7.50 – 7.23 (m, 2H), 7.16 – 7.11 (m, 2H), 7.05 – 6.91 (m, 2H), 6.89 – 6.77 (m, 2H), 5.48 (s, 1H).
582	CF ₃		(500 MHz, Chloroform-d) δ 8.28 – 8.12 (m, 2H), 7.83 (d, J = 1.5 Hz, 1H), 7.59 – 7.51 (m, 2H), 7.55 (s, 1H), 7.34 – 7.26 (m, 2H), 7.09 (s, 1H), 5.72 (s, 1H).
583	CF ₃		(500 MHz, Chloroform-d) δ 8.33 – 8.27 (m, 2H), 7.70 – 7.62 (m, 2H), 7.60 – 7.53 (m, 2H), 7.34 – 7.26 (m, 2H), 7.03 (s, 1H), 5.84 (s, 1H).
584	CF ₃		(500 MHz, Chloroform-d) δ 8.05 – 7.95 (m, 2H), 7.86 – 7.65 (m, 2H), 7.54 – 7.44 (m, 2H), 7.35 – 7.23 (m, 1H), 7.09 (s, 1H), 5.76 (s, 1H).
585	CF ₃		(500 MHz, Chloroform-d) δ 8.14 (d, J = 1.5 Hz, 1H), 8.05 (dd, J = 7.5, 1.5 Hz, 1H), 7.79 – 7.73 (m, 2H), 7.54 – 7.44 (m, 2H), 7.35 – 7.28 (m, 1H), 7.04 (s, 1H), 5.89 (s, 1H).
586	CF ₃		(500 MHz, Chloroform-d) δ 8.52 (dd, J = 7.5, 1.5 Hz, 1H), 8.42 (dd, J = 7.0, 1.5 Hz, 1H), 7.96 – 7.81 (m, 2H), 7.60 – 7.51 (m, 2H), 7.31 – 7.20 (m, 1H), 7.06 (s, 1H), 5.76 (s, 1H).
587	CF ₃		(500 MHz, Chloroform-d) δ 8.23 (s, 1H), 7.96 – 7.51 (m, 3H), 7.18 (d, J = 2.5 Hz, 1H), 7.08 (s, 1H), 6.68 – 6.51 (m, 1H), 5.75 (s, 1H).
588	CF ₃		(500 MHz, Chloroform-d) δ 8.06 (s, 1H), 7.90 – 7.80 (m, 2H), 7.58 (dd, J = 7.5, 1.5 Hz, 1H), 7.18 (d, J = 7.5 Hz, 1H), 7.02 (s, 1H), 6.56 – 6.47 (m, 1H), 5.82 (s, 1H).
589	CF ₃		(500 MHz, Chloroform-d) δ 8.06 (s, 1H), 7.90 – 7.80 (m, 2H), 7.58 (dd, J = 7.5, 1.5 Hz, 1H), 7.18 (d, J = 7.5 Hz, 1H), 7.02 (s, 1H), 6.56 – 6.45 (m, 1H), 5.82 (s, 1H).
590	CF ₃		(500 MHz, Chloroform-d) δ 7.77 (d, J = 1.5 Hz, 1H), 7.65 (d, J = 1.0 Hz, 1H), 7.14 – 7.05 (m, 3H), 6.62 (dd, J = 7.5, 1.5 Hz, 1H), 5.72 (s, 1H), 3.74 (s, 3H).
591	CF ₃		
592	CF ₃		(500 MHz, Chloroform-d) δ 8.02 – 7.93 (m, 2H), 7.65 (dd, J = 7.5, 1.5 Hz, 1H), 7.09 (s, 1H).
593	CF ₃		(500 MHz, Chloroform-d) δ 8.11 – 8.03 (m, 2H), 7.67 (dd, J = 7.5, 1.5 Hz, 1H), 7.17 (s, 1H), 7.09 (s, 1H), 5.68 (s, 1H), 2.50 (s, 3H).
594	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.86 (s, 1H), 8.57 (s, 1H), 7.99 – 7.81 (m, 2H), 7.48 – 7.36 (m, 2H), 7.29 (s, 1H).
595	CF ₃		(500 MHz, Chloroform-d) δ 7.83 (d, J = 1.5 Hz, 1H), 7.66 – 7.58 (m, 3H), 7.08 (s, 1H), 6.76 (dd, J = 7.5, 1.5 Hz, 1H), 5.63 (s, 1H).
596	CF ₃		(500 MHz, Chloroform-d) δ 9.33 (s, 1H), 8.31 (d, J = 1.5 Hz, 1H), 8.16 (d, J = 7.5 Hz, 1H), 7.81 (dd, J = 7.5, 1.5 Hz, 1H), 7.08 (s, 1H), 5.81 (s, 1H).
597	CF ₃		(500 MHz, Chloroform-d) δ 7.85 (d, J = 1.5 Hz, 1H), 7.79 (d, J = 7.5 Hz, 1H), 7.67 (dd, J = 7.5, 1.5 Hz, 1H), 7.03 (s, 1H), 5.84 (s, 1H), 2.61 (s, 3H).
598	CF ₃		(500 MHz, Chloroform-d) δ 8.25 (s, 1H), 7.99 (d, J = 1.5 Hz, 1H), 7.71 (d, J = 7.5 Hz, 1H), 7.59 (dd, J = 7.5, 1.5 Hz, 1H), 7.07 (s, 1H), 5.84 (s, 1H).

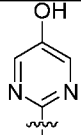
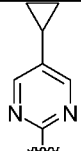
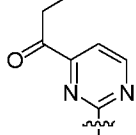
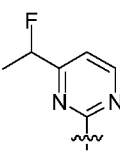
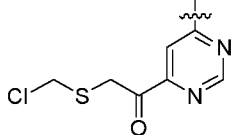
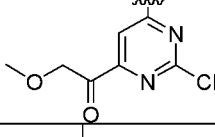
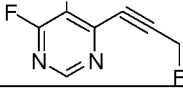
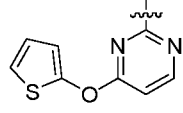
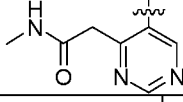
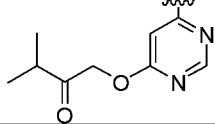
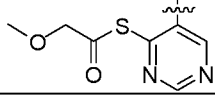
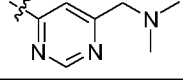
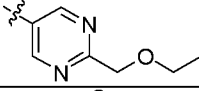
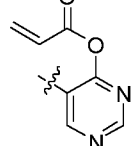
599	CF ₃		(500 MHz, Chloroform-d) δ 7.66 (d, J = 1.5 Hz, 1H), 7.58 (d, J = 7.5 Hz, 1H), 7.46 (dd, J = 7.5, 1.5 Hz, 1H), 7.06 (s, 1H), 6.75 – 6.69 (m, 1H), 6.45 – 6.33 (m, 1H), 5.60 (s, 1H), 3.22 – 3.12 (m, 2H).
600	CF ₃		(500 MHz, Chloroform-d) δ 9.18 (s, 1H), 8.09 – 8.00 (m, 1H), 7.31 – 7.25 (m, 2H), 7.21 – 7.15 (m, 2H), 5.98 (s, 1H).
601	CF ₃		
602	CF ₃		(500 MHz, Chloroform-d) δ 8.36 (d, J = 1.5 Hz, 1H), 8.06 (d, J = 7.5 Hz, 1H), 7.73 (dd, J = 7.5, 1.5 Hz, 1H), 7.15 (s, 1H), 5.93 (s, 1H).
603	CF ₃		(500 MHz, Chloroform-d) δ 8.22 (d, J = 1.5 Hz, 1H), 8.05 (d, J = 7.5 Hz, 1H), 7.66 (dd, J = 7.5, 1.5 Hz, 1H), 7.42 (d, J = 2.5 Hz, 1H), 7.32 (dd, J = 2.5, 1.6 Hz, 1H), 7.08 (s, 1H), 5.67 (s, 1H).
604	CF ₃		(500 MHz, Chloroform-d) δ 7.76 (d, J = 1.5 Hz, 1H), 7.69 (d, J = 7.5 Hz, 1H), 7.58 (dd, J = 7.5, 1.5 Hz, 1H), 7.08 (s, 1H), 6.28 (s, 1H), 5.71 (s, 1H), 2.86 (q, J = 8.0 Hz, 2H), 1.32 (t, J = 8.0 Hz, 3H).
605	CF ₃		(500 MHz, Chloroform-d) δ 9.34 (s, 1H), 8.38 (d, J = 1.5 Hz, 1H), 7.86 (d, J = 7.5 Hz, 1H), 7.78 (dd, J = 7.5, 1.5 Hz, 1H), 7.08 (s, 1H), 5.64 (s, 1H).
606	CF ₃		(500 MHz, Chloroform-d) δ 8.30 (s, 1H), 7.79 – 7.70 (m, 2H), 7.49 (dd, J = 7.5, 1.5 Hz, 1H), 7.02 (s, 1H), 5.82 (s, 1H).
607	CF ₃		(500 MHz, Chloroform-d) δ 8.41 (s, 1H), 7.95 (d, J = 1.5 Hz, 1H), 7.79 (d, J = 7.5 Hz, 1H), 7.60 (dd, J = 7.5, 1.5 Hz, 1H), 7.08 (s, 1H), 5.64 (s, 1H), 4.55 (q, J = 8.0 Hz, 2H), 1.63 (t, J = 8.0 Hz, 3H).
608	CF ₃		(500 MHz, Chloroform-d) δ 7.23 (d, J = 7.5 Hz, 1H), 7.15 – 7.07 (m, 2H), 6.59 (dd, J = 7.5, 1.5 Hz, 1H), 6.49 (d, J = 1.5 Hz, 1H), 5.87 (s, 1H), 3.10 (s, 2H), 2.90 (s, 6H).
609	CF ₃		(500 MHz, Chloroform-d) δ 7.82 – 7.74 (m, 2H), 7.73 (d, J = 1.5 Hz, 1H), 7.11 (d, J = 2.5 Hz, 1H), 7.02 (s, 1H), 6.50 (d, J = 2.5 Hz, 1H), 5.82 (s, 1H), 3.80 (s, 3H).
610	CF ₃		
611	CF ₃		(500 MHz, Chloroform-d) δ 8.30 (d, J = 1.5 Hz, 1H), 7.82 – 7.72 (m, 2H), 7.02 (s, 1H), 5.79 (s, 1H), 4.30 (s, 3H).
612	CF ₃		(500 MHz, Chloroform-d) δ 7.80 – 7.71 (m, 2H), 7.33 – 7.25 (m, 2H), 6.17 (s, 1H), 2.49 (s, 3H).
613	CF ₃		(500 MHz, Chloroform-d) δ 7.66 – 7.55 (m, 2H), 7.32 – 7.24 (m, 2H), 7.26 – 7.18 (m, 2H), 6.04 (s, 1H).
614	CF ₃		(500 MHz, Chloroform-d) δ 8.18 – 8.08 (m, 2H), 7.58 – 7.50 (m, 2H), 7.29 (s, 1H).
615	CF ₃		(500 MHz, Chloroform-d) δ 7.72 – 7.58 (m, 3H), 7.29 (s, 1H).
616	CF ₃		(500 MHz, Chloroform-d) δ 7.66 – 7.52 (m, 2H), 7.30 – 7.20 (m, 2H), 7.09 (s, 1H).

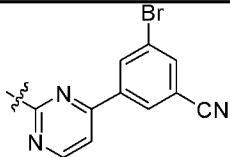
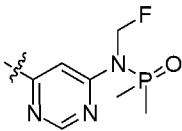
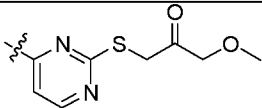
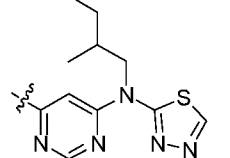
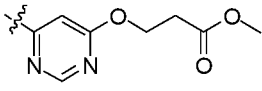
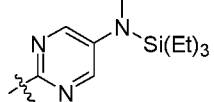
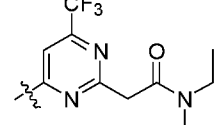
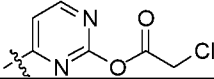
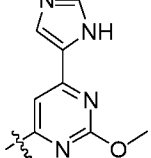
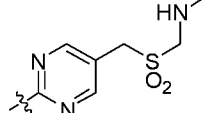
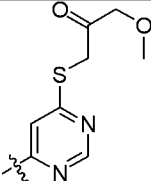
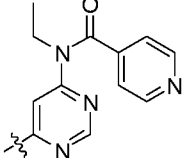
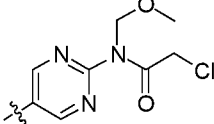
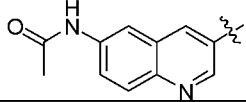
617	CF ₃		
618	CF ₃		(500 MHz, Chloroform-d) δ 7.86 (s, 1H), 7.16 (d, J = 2.0 Hz, 1H), 7.08 (dd, J = 7.5, 2.0 Hz, 1H), 6.99 (d, J = 7.5 Hz, 1H), 5.34 (s, 1H), 4.32 – 4.25 (m, 4H).
619	CF ₃		
620	CF ₃		
621	CF ₃		
622	CF ₃		(500 MHz, Chloroform-d) δ 9.72 (d, J = 1.5 Hz, 1H), 9.43 (d, J = 7.5 Hz, 1H), 8.03 (dd, J = 7.5, 1.5 Hz, 1H), 7.24 (s, 1H), 5.86 (s, 1H).
623	CF ₃		(500 MHz, Chloroform-d) δ 9.50 (dd, J = 7.5, 1.5 Hz, 1H), 8.01 (dd, J = 7.0, 1.5 Hz, 1H), 7.82 (dd, J = 7.5, 7.0 Hz, 1H), 7.23 (s, 1H), 5.77 (s, 1H).
624	CF ₃		(500 MHz, Chloroform-d) δ 9.50 (s, 1H), 9.42 (s, 1H), 7.28 (s, 1H), 5.44 (s, 1H), 2.38 (s, 3H).
625	CF ₃		(500 MHz, Chloroform-d) δ 9.26 (s, 1H), 8.82 (d, J = 5.5 Hz, 1H), 8.75 (d, J = 5.5 Hz, 1H), 7.26 (s, 1H), 5.59 (s, 1H).
626	CF ₃		(500 MHz, Chloroform-d) δ 9.19 (s, 1H), 8.88 (s, 1H), 7.28 (s, 1H).
627	CF ₃		(500 MHz, Chloroform-d) δ 8.82 – 8.66 (m, 2H), 7.31 (s, 1H), 6.92 – 6.81 (m, 1H), 5.93 – 5.84 (m, 2H).
628	CF ₃		(500 MHz, Chloroform-d) δ 9.45 (s, 2H), 7.29 (s, 1H), 5.39 (s, 1H).
629	CF ₃		(500 MHz, Chloroform-d) δ 9.46 (s, 1H), 7.25 (s, 1H), 5.85 (s, 1H), 3.93 (s, 3H).
630	CF ₃		(500 MHz, Chloroform-d) δ 7.05 (s, 1H), 5.87 (s, 1H), 2.82 (s, 6H).
631	CF ₃		
632	CF ₃		
633	CF ₃		
634	CF ₃		(500 MHz, Chloroform-d) δ 9.25 (d, J = 1.5 Hz, 1H), 8.53 (d, J = 7.5 Hz, 1H), 8.11 – 8.04 (m, 2H), 7.91 – 7.82 (m, 3H), 5.50 (s, 1H).

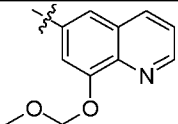
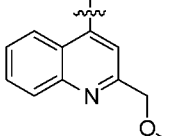
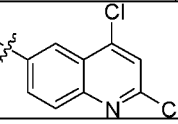
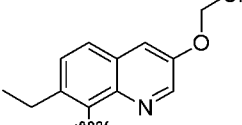
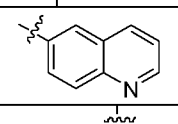
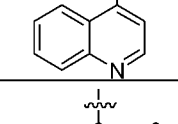
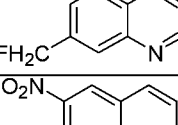
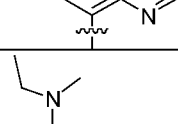
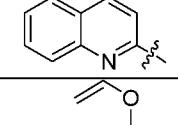
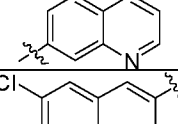
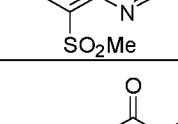
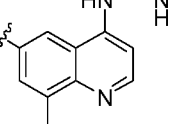
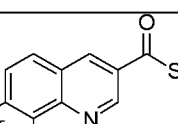
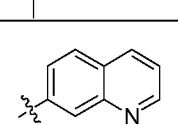
635	CF ₃		(500 MHz, Chloroform-d) δ 9.13 (s, 1H), 8.64 – 8.51 (m, 2H), 8.39 (d, J = 7.5 Hz, 1H), 8.05 – 7.96 (m, 2H), 6.86 (s, 1H).
636	CF ₃		(500 MHz, Chloroform-d) δ 9.08 (d, J = 1.5 Hz, 1H), 8.61 (d, J = 7.5 Hz, 1H), 8.06 (dd, J = 7.5, 1.5 Hz, 1H), 7.91 – 7.83 (m, 2H), 7.78 – 7.69 (m, 2H), 5.36 (s, 1H).
637	CF ₃		(500 MHz, Chloroform-d) δ 9.34 (d, J = 1.4 Hz, 1H), 8.78 (s, 1H), 8.10 (s, 1H), 8.00 (dt, J = 7.5, 1.6 Hz, 1H), 7.81 (dd, J = 7.3, 1.6 Hz, 1H), 7.65 – 7.53 (m, 2H), 5.49 (s, 1H).
638	CF ₃		(500 MHz, Chloroform-d) δ 9.00 (d, J = 7.5 Hz, 1H), 8.78 (d, J = 7.5 Hz, 1H), 8.37 (d, J = 1.5 Hz, 1H), 8.12 (d, J = 1.5 Hz, 1H), 7.86 (s, 1H), 5.16 (s, 1H).
639	CF ₃		(500 MHz, Chloroform-d) δ 8.78 – 8.60 (m, 2H), 8.40 (d, J = 1.5 Hz, 1H), 8.27 (d, J = 7.5 Hz, 1H), 7.94 (dd, J = 7.5, 1.5 Hz, 1H), 7.89 (s, 1H), 5.46 (s, 1H).
640	CF ₃		(500 MHz, Chloroform-d) δ 9.68 (s, 1H), 8.25 (dd, J = 7.5, 1.5 Hz, 1H), 8.18 – 8.11 (m, 3H), 7.74 (s, 1H).
641	CF ₃		(500 MHz, Chloroform-d) δ 8.92 (s, 1H), 8.40 (d, J = 1.5 Hz, 1H), 8.25 (d, J = 7.5 Hz, 1H), 7.92 (dd, J = 7.5, 1.5 Hz, 1H), 7.89 (s, 1H), 5.43 (s, 1H), 2.93 (q, J = 8.0 Hz, 2H), 1.27 (t, J = 8.0 Hz, 3H).
642	CF ₃		(500 MHz, Chloroform-d) δ 7.84 (s, 1H), 6.81 (dd, J = 7.5, 7.0 Hz, 1H), 6.66 (dd, J = 7.5, 2.0 Hz, 1H), 6.44 (dd, J = 7.0, 2.0 Hz, 1H), 5.20 (s, 1H), 4.24 (s, 1H), 3.04 – 2.89 (m, 4H), 2.15 – 2.07 (m, 2H).
643	CF ₃		(500 MHz, Chloroform-d) δ 7.85 (s, 1H), 7.14 (dd, J = 7.5, 2.0 Hz, 1H), 6.83 (d, J = 2.0 Hz, 1H), 6.67 (d, J = 7.5 Hz, 1H), 5.34 (s, 1H), 3.33 – 3.17 (m, 2H), 2.95 – 2.87 (m, 5H), 2.10 – 2.02 (m, 2H).
644	CF ₃		(500 MHz, Chloroform-d) δ 7.83 (s, 1H), 6.55 – 6.44 (m, 3H), 5.87 (s, 1H), 3.95 (s, 1H), 3.72 – 3.58 (m, 2H), 3.41 – 3.25 (m, 2H), 2.99 – 2.87 (m, 1H), 1.88 – 1.79 (m, 1H), 1.19 – 1.09 (m, 2H), 0.91 – 0.82 (m, 2H).
645	CF ₃		(500 MHz, Chloroform-d) δ 7.23 – 7.16 (m, 2H), 7.08 – 6.88 (m, 2H), 6.77 (s, 1H), 5.87 (s, 1H), 3.52 – 3.39 (m, 2H), 2.90 – 2.77 (m, 2H), 2.11 – 2.03 (m, 2H).
646	CF ₃		(500 MHz, Chloroform-d) δ 9.95 – 9.86 (m, 2H), 8.29 (dd, J = 2.5, 1.5 Hz, 1H), 8.15 (dd, J = 7.5, 1.5 Hz, 1H), 8.10 (d, J = 7.5 Hz, 1H), 7.86 (s, 1H), 5.70 (s, 1H).
647	CF ₃		(500 MHz, Chloroform-d) δ 9.95 (d, J = 1.5 Hz, 1H), 9.69 (s, 1H), 8.08 – 7.99 (m, 2H), 7.94 (d, J = 7.5 Hz, 1H), 7.89 (s, 1H), 5.46 (s, 1H).
648	CF ₃		(500 MHz, Chloroform-d) δ 8.10 (s, 1H), 8.05 (dd, J = 7.5, 1.5 Hz, 1H), 7.59 (d, J = 7.5 Hz, 1H), 6.74 (d, J = 1.5 Hz, 1H), 5.35 (s, 1H), 3.87 (s, 3H).
649	CF ₃		
650	CF ₃		

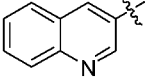
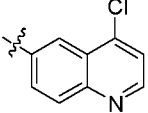
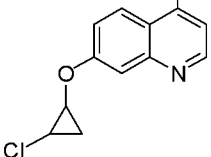
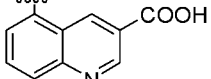
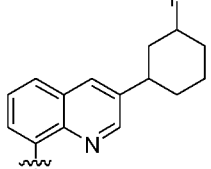
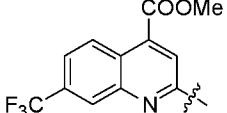
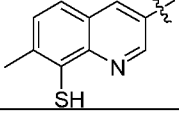
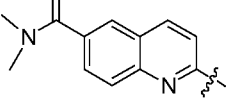
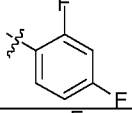
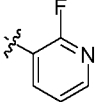
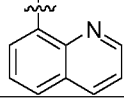
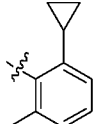
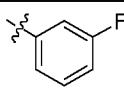
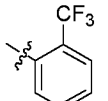
651	CF ₃		
652	CF ₃		
653	CF ₃		(500 MHz, Chloroform-d) δ 9.31 (d, J = 5.5 Hz, 1H), 8.28 (dd, J = 7.5, 1.5 Hz, 1H), 8.00 (d, J = 7.5 Hz, 1H), 7.90 (s, 1H), 7.87 – 7.76 (m, 2H), 5.50 (s, 1H).
654	CF ₃		(500 MHz, Chloroform-d) δ 9.33 (d, J = 7.5 Hz, 1H), 8.41 (d, J = 7.5 Hz, 1H), 8.10 (dd, J = 7.5, 1.5 Hz, 1H), 8.02 (d, J = 1.5 Hz, 1H), 7.94 (d, J = 7.5 Hz, 1H), 7.90 (s, 1H), 5.59 (s, 1H).
655	CF ₃		(500 MHz, Chloroform-d) δ 9.39 (d, J = 7.5 Hz, 1H), 9.01 (d, J = 1.5 Hz, 1H), 8.85 (s, 1H), 8.75 (d, J = 1.5 Hz, 1H), 8.62 (d, J = 7.5 Hz, 1H), 6.80 (s, 1H), 3.17 (s, 3H).
656	CF ₃		(500 MHz, Chloroform-d) δ 9.39 (s, 1H), 8.01 – 7.85 (m, 2H), 8.75 – 8.62 (m, 2H), 6.80 (s, 1H).
657	CF ₃		(500 MHz, Chloroform-d) δ 9.11 (s, 2H), 7.24 (s, 1H), 5.84 (s, 1H).
658	CF ₃		(500 MHz, Chloroform-d) δ 9.77 (s, 1H), 9.32 (s, 1H), 7.30 (s, 1H), 5.30 (s, 1H).
659	CF ₃		(500 MHz, Chloroform-d) δ 9.00 (s, 2H), 7.25 (s, 1H), 5.76 (s, 1H).
660	CF ₃		(500 MHz, Chloroform-d) δ 9.19 (s, 1H), 7.37 (s, 1H), 7.08 (s, 2H), 5.32 (s, 1H), 2.82 (s, 3H).
661	CF ₃		(500 MHz, Chloroform-d) δ 9.05 (s, 1H), 7.26 (s, 1H), 5.59 (s, 1H), 2.84 (s, 3H).
662	CF ₃		(500 MHz, Chloroform-d) δ 7.25 (s, 1H), 5.68 (s, 1H).
663	CF ₃		(500 MHz, Chloroform-d) δ 9.25 (s, 2H), 8.30 (s, 1H), 7.34 (s, 1H), 4.98 (s, 1H), 2.11 (s, 3H).
664	CF ₃		(500 MHz, Chloroform-d) δ 9.83 (s, 1H), 9.34 (s, 1H), 7.49 (s, 1H), 6.57 (s, 1H), 3.96 (s, 3H).
665	CF ₃		(500 MHz, Chloroform-d) δ 9.57 (s, 2H), 7.25 (s, 1H), 5.91 (s, 1H).
666	CF ₃		(500 MHz, Chloroform-d) δ 9.21 (s, 2H), 7.24 (s, 1H), 5.84 (s, 1H), 3.83 (s, 3H).

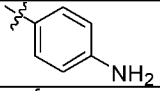
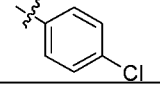
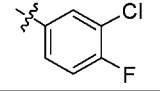
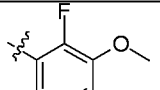
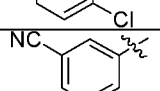
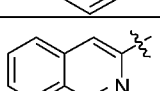
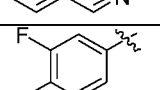
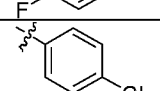
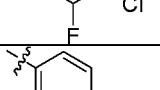
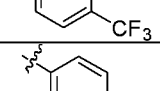
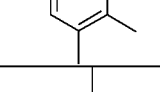
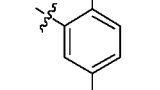
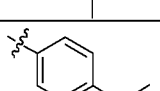
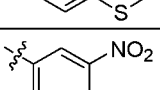
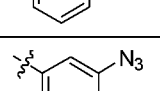
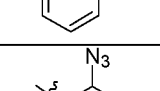
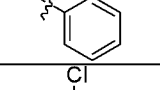
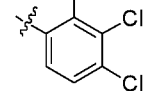
667	CF ₃		(500 MHz, Chloroform-d) δ 9.23 (s, 1H), 9.05 (s, 1H), 7.34 (s, 1H), 3.99 (s, 3H), 3.83 (s, 3H).
668	CF ₃		(500 MHz, Chloroform-d) δ 9.60 (s, 1H), 9.15 (d, <i>J</i> = 5.0 Hz, 1H), 7.86 (d, <i>J</i> = 5.0 Hz, 1H), 7.27 (s, 1H).
669	CF ₃		(500 MHz, Chloroform-d) δ 9.60 (s, 1H), 7.71 (s, 1H), 7.27 (s, 1H), 2.27 (q, <i>J</i> = 8.0 Hz, 2H), 1.19 (t, <i>J</i> = 8.0 Hz, 3H).
670	CF ₃		(500 MHz, Chloroform-d) δ 8.86 (d, <i>J</i> = 5.0 Hz, 1H), 7.52 (d, <i>J</i> = 5.0 Hz, 1H), 7.28 (s, 1H), 4.29 (q, <i>J</i> = 8.0 Hz, 2H), 1.29 (t, <i>J</i> = 8.0 Hz, 3H).
671	CF ₃		(500 MHz, Chloroform-d) δ 9.87 (s, 1H), 8.82 (s, 1H), 7.35 (s, 1H), 3.00 (s, 3H), 2.68 (s, 3H).
672	CF ₃		(500 MHz, Chloroform-d) δ 8.73 (s, 1H), 7.27 (s, 1H), 2.60 (s, 3H), 2.45 (s, 3H).
673	CF ₃		(500 MHz, Chloroform-d) δ 8.06 (s, 1H), 7.27 (s, 1H), 2.35 (s, 3H).
674	CF ₃		(500 MHz, Chloroform-d) δ 7.27 (s, 1H), 3.19 (s, 3H), 2.49 (s, 3H), 2.39 (s, 3H).
675	CF ₃		(500 MHz, Chloroform-d) δ 9.96 (s, 1H), 8.63 (s, 1H), 7.28 (s, 1H).
676	CF ₃		(500 MHz, Chloroform-d) δ 9.30 (s, 1H), 8.59 (s, 1H), 7.20 (s, 1H), 2.49 (s, 3H).
677	CF ₃		(500 MHz, Chloroform-d) δ 9.02 (d, <i>J</i> = 5.0 Hz, 2H), 7.47 (t, <i>J</i> = 5.0 Hz, 1H), 7.26 (s, 1H).
678	CF ₃		
679	CF ₃		(500 MHz, Chloroform-d) δ 7.26 (s, 1H), 6.51 (s, 1H), 2.67 (s, 3H).
680	CF ₃		(500 MHz, Chloroform-d) δ 8.05 (s, 1H), 7.26 (s, 1H), 3.47 (hept, <i>J</i> = 8.0 Hz, 1H), 2.66 (s, 3H), 1.47 (d, <i>J</i> = 8.0 Hz, 1H).
681	CF ₃		(500 MHz, Chloroform-d) δ 7.22 (s, 1H), 5.71 (s, 1H), 2.70 (s, 6H), 2.34 (s, 3H).

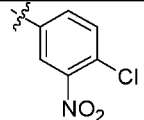
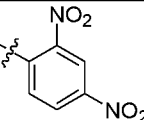
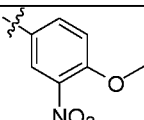
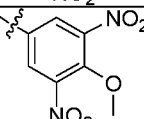
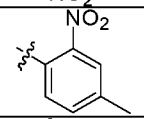
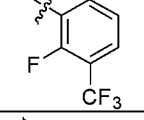
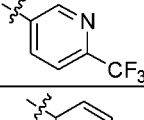
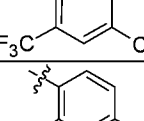
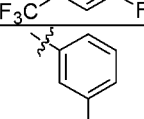
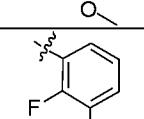
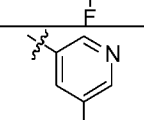
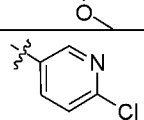
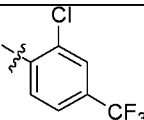
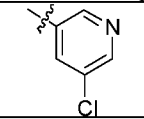
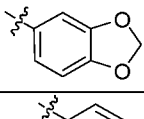
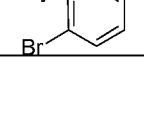
682	CF ₃		(500 MHz, Chloroform-d) δ 8.72 (s, 2H), 7.25 (s, 1H), 6.80 (s, 1H), 5.87 (s, 1H).
683	CF ₃		(500 MHz, Chloroform-d) δ 8.72 (s, 2H), 7.25 (s, 1H), 1.70 – 1.56 (m, 1H), 1.06 – 0.97 (m, 2H), 0.78 – 0.69 (m, 2H).
684	CF ₃		(500 MHz, Chloroform-d) δ 9.17 (d, J = 5.0 Hz, 1H), 8.06 (d, J = 5.0 Hz, 1H), 7.27 (s, 1H), 2.73 (q, J = 8.0 Hz, 2H), 1.34 (t, J = 8.0 Hz, 3H).
685	CF ₃		(500 MHz, Chloroform-d) δ 8.88 (d, J = 5.0 Hz, 1H), 7.88 (d, J = 5.0 Hz, 1H), 7.26 (s, 1H), 5.62 – 5.52 (m, 2H), 1.73 – 1.44 (m, 3H).
686	CF ₃		
687	CF ₃		(500 MHz, Chloroform-d) δ 8.24 (s, 1H), 7.25 (s, 1H), 5.64 (s, 1H), 4.48 (s, 2H), 3.40 (s, 3H).
688	CF ₃		
689	CF ₃		(500 MHz, Chloroform-d) δ 8.96 (d, J = 5.0 Hz, 1H), 7.36 – 7.28 (m, 2H), 7.21 (d, J = 5.0 Hz, 1H), 6.90 (s, 1H), 6.45 (d, J = 2.5 Hz, 1H), 5.61 (dd, J = 2.5, 1.5 Hz, 1H).
690	CF ₃		(500 MHz, Chloroform-d) δ 9.94 (s, 1H), 9.47 (s, 1H), 8.95 (s, 1H), 7.45 (s, 1H), 5.98 (s, 1H), 3.44 (s, 2H), 2.78 (s, 3H).
691	CF ₃		(500 MHz, Chloroform-d) δ 9.49 (s, 1H), 7.39 (s, 1H), 7.24 (s, 1H), 5.77 (s, 1H), 5.10 (s, 2H), 2.66 (hept, J = 7.0 Hz, 1H), 1.18 (d, J = 7.0 Hz, 6H).
692	CF ₃		(500 MHz, Chloroform-d) δ 9.38 (s, 1H), 9.05 (s, 1H), 8.40 (s, 1H), 7.49 (s, 1H), 4.48 (s, 2H), 3.34 (s, 3H).
693	CF ₃		(500 MHz, Chloroform-d) δ 9.60 (d, J = 1.5 Hz, 1H), 7.71 (s, 1H), 7.24 (s, 1H), 5.72 (s, 1H), 3.62 (s, 2H), 2.68 (s, 6H).
694	CF ₃		(500 MHz, Chloroform-d) δ 9.19 (s, 2H), 7.29 (s, 1H), 5.40 (s, 1H), 4.66 (s, 2H), 3.60 (q, J = 8.0 Hz, 2H), 1.15 (t, J = 8.0 Hz, 3H).
695	CF ₃		(500 MHz, Chloroform-d) δ 9.12 (s, 1H), 9.05 (s, 1H), 7.26 (s, 1H), 6.48 – 6.33 (m, 1H), 6.21 (s, 1H), 5.91 – 5.78 (m, 2H).

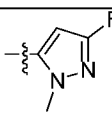
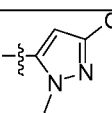
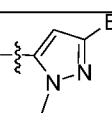
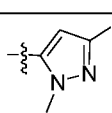
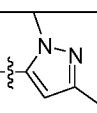
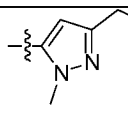
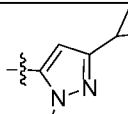
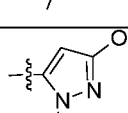
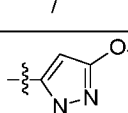
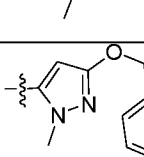
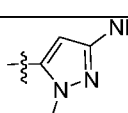
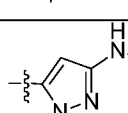
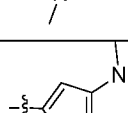
696	CF ₃		(500 MHz, Chloroform-d) δ 8.90 (d, J = 5.0 Hz, 1H), 8.11 (dd, J = 2.5, 2.0 Hz, 1H), 8.06 – 7.96 (m, 2H), 7.92 (t, J = 2.0 Hz, 1H), 7.28 (s, 1H).
697	CF ₃		
698	CF ₃		(500 MHz, Chloroform-d) δ 8.89 (d, J = 5.0 Hz, 1H), 7.59 (d, J = 5.0 Hz, 1H), 7.24 (s, 1H), 5.83 (s, 1H), 4.53 (s, 2H), 4.09 (s, 2H), 3.43 (s, 3H).
699	CF ₃		(500 MHz, Chloroform-d) δ 9.16 (s, 1H), 8.95 (s, 1H), 7.27 (s, 1H), 6.78 (s, 1H), 4.02 – 3.94 (m, 2H), 1.84 – 1.71 (m, 1H), 1.49 – 1.38 (m, 1H), 1.18 – 1.00 (d, J = 6.8 Hz, 3H), 0.97 – 0.82 (m, 4H).
700	CF ₃		(500 MHz, Chloroform-d) δ 9.48 (s, 1H), 7.34 (s, 1H), 7.21 (s, 1H), 4.33 (t, J = 7.5 Hz, 2H), 3.64 (s, 3H), 2.67 (t, J = 7.5 Hz, 2H).
701	CF ₃		
702	CF ₃		(500 MHz, Chloroform-d) δ 7.77 (s, 1H), 7.25 (s, 1H), 5.89 (s, 1H), 3.72 (q, J = 8.0 Hz, 2H), 3.44 (s, 2H), 3.08 (s, 3H), 1.23 (t, J = 8.0 Hz, 3H).
703	CF ₃		(500 MHz, Chloroform-d) δ 8.98 (d, J = 5.0 Hz, 1H), 7.24 – 7.19 (m, 2H), 4.32 (s, 2H).
704	CF ₃		(500 MHz, Chloroform-d) δ 7.97 (s, 1H), 7.88 (s, 1H), 7.83 (s, 1H), 7.29 (s, 1H), 3.89 (s, 3H).
705	CF ₃		(500 MHz, Chloroform-d) δ 8.96 (s, 2H), 7.26 (s, 1H), 4.67 (s, 2H), 4.37 (s, 2H), 2.41 (s, 3H).
706	CF ₃		(500 MHz, Chloroform-d) δ 9.34 (s, 1H), 7.79 (s, 1H), 7.26 (s, 1H), 4.53 (s, 2H), 4.09 (s, 2H), 3.34 (s, 3H).
707	CF ₃		(500 MHz, Chloroform-d) δ 9.09 (s, 1H), 8.70 (d, J = 5.0 Hz, 2H), 7.64 (d, J = 5.0 Hz, 2H), 7.28 (s, 1H), 7.18 (s, 1H), 3.67 (q, J = 8.0 Hz, 2H), 1.34 (t, J = 8.0 Hz, 3H).
708	CF ₃		(500 MHz, Chloroform-d) δ 9.24 (s, 2H), 7.35 (s, 1H), 5.71 (s, 2H), 3.63 (s, 2H), 3.43 (s, 3H).
709	CF ₃		(500 MHz, Chloroform-d) δ 9.26 (d, J = 1.5 Hz, 1H), 8.43 (t, J = 1.5 Hz, 1H), 8.27 – 8.18 (m, 2H), 8.10 (s, 1H), 7.62 – 7.48 (m, 2H), 5.74 (s, 1H), 2.10 (s, 3H).

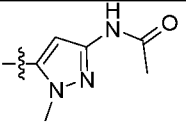
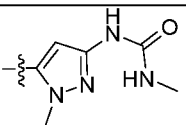
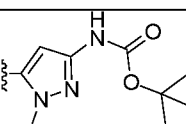
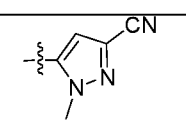
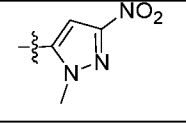
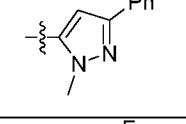
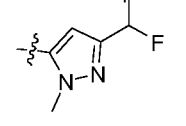
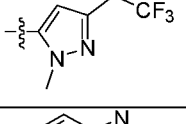
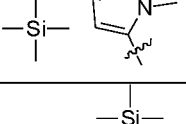
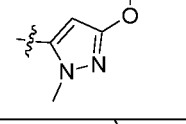
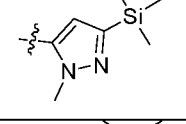
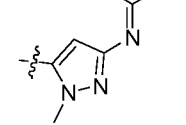
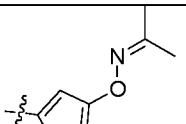
710	CF ₃		(500 MHz, Chloroform-d) δ 9.06 (dd, $J = 7.5, 1.5$ Hz, 1H), 7.53 – 7.41 (m, 1H), 7.30 – 7.23 (m, 2H), 7.06 (s, 1H), 6.97 (d, $J = 1.5$ Hz, 1H), 6.02 (s, 2H), 5.53 (s, 1H), 3.30 (s, 3H).
711	CF ₃		(500 MHz, Chloroform-d) δ 8.17 – 8.14 (m, 2H), 7.78 – 7.68 (m, 3H), 7.55 – 7.39 (m, 1H), 5.41 (s, 1H), 4.78 (s, 2H), 3.40 (s, 3H).
712	CF ₃		(500 MHz, Chloroform-d) δ 8.58 (d, $J = 1.5$ Hz, 1H), 8.34 (d, $J = 7.5$ Hz, 1H), 8.10 (dd, $J = 7.5, 1.5$ Hz, 1H), 7.56 (s, 1H), 7.04 (s, 1H), 5.72 (s, 1H).
713	CF ₃		
714	CF ₃		(500 MHz, Chloroform-d) δ 8.90 (dd, $J = 7.5, 1.5$ Hz, 1H), 8.36 (d, $J = 7.5$ Hz, 1H), 8.25 – 8.16 (m, 3H), 7.39 – 7.26 (m, 1H), 7.03 (s, 1H), 5.72 (s, 1H).
715	CF ₃		(500 MHz, Chloroform-d) δ 9.14 (d, $J = 7.5$ Hz, 1H), 8.17 – 8.14 (m, 2H), 7.76 – 7.68 (m, 3H), 7.57 – 7.41 (m, 1H), 5.48 (s, 1H).
716	CF ₃		(500 MHz, Chloroform-d) δ 8.81 (dd, $J = 7.5, 1.5$ Hz, 1H), 8.19 – 8.10 (m, 2H), 7.93 (d, $J = 1.5$ Hz, 1H), 7.87 (s, 1H), 7.51 (dd, $J = 7.5, 5.0$ Hz, 1H), 5.47 (s, 1H), 5.30 (d, $J = 73.5$ Hz, 1H).
717	CF ₃		(500 MHz, Chloroform-d) δ 9.15 (dd, $J = 7.5, 1.7$ Hz, 1H), 8.88 (d, $J = 1.5$ Hz, 1H), 8.45 – 8.37 (m, 2H), 7.58 (dd, $J = 7.5, 5.5$ Hz, 1H), 6.99 (s, 1H).
718	CF ₃		(500 MHz, Chloroform-d) δ 8.84 (d, $J = 7.5$ Hz, 1H), 7.97 – 7.88 (m, 2H), 7.73 (dd, $J = 7.5, 1.5$ Hz, 1H), 7.51 (dd, $J = 7.5, 7.0$ Hz, 1H), 6.94 (dd, $J = 7.5, 1.5$ Hz, 1H), 5.70 (s, 1H), 3.29 (q, $J = 8.0$ Hz, 2H), 2.98 (s, 3H), 1.20 (t, $J = 8.0$ Hz, 3H).
719	CF ₃		
720	CF ₃		(500 MHz, Chloroform-d) δ 9.33 (d, $J = 1.5$ Hz, 1H), 8.50 (dd, $J = 2.5, 1.5$ Hz, 1H), 8.19 (d, $J = 1.5$ Hz, 1H), 8.04 – 7.90 (m, 2H), 5.08 (s, 1H), 3.27 (s, 3H).
721	CF ₃		(500 MHz, Chloroform-d) δ 8.89 (d, $J = 5.5$ Hz, 1H), 8.15 (s, 1H), 7.87 (d, $J = 1.5$ Hz, 1H), 7.77 (d, $J = 1.5$ Hz, 1H), 7.12 (s, 1H), 6.85 (d, $J = 5.5$ Hz, 1H), 5.27 – 5.14 (m, 2H), 2.64 (s, 3H), 2.46 (s, 3H).
722	CF ₃		(500 MHz, Chloroform-d) δ 9.29 (d, $J = 1.5$ Hz, 1H), 8.99 (s, 1H), 8.74 (q, $J = 1.5$ Hz, 1H), 7.86 – 7.79 (m, 2H), 6.82 (s, 1H), 2.49 (s, 3H), 2.44 (s, 3H).
723	CF ₃		(500 MHz, Chloroform-d) δ 8.90 (d, $J = 6.5$ Hz, 1H), 8.35 (d, $J = 1.5$ Hz, 1H), 8.14 (dd, $J = 6.5, 1.5$ Hz, 1H), 7.94 (dd, $J = 7.5, 1.5$ Hz, 1H), 7.84 (dd, $J = 7.5, 1.5$ Hz, 1H), 7.38 (d, $J = 7.5$ Hz, 1H), 6.85 (s, 1H).

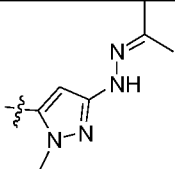
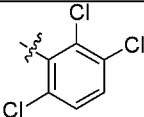
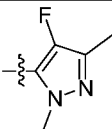
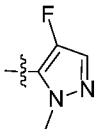
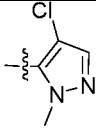
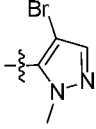
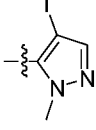
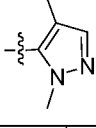
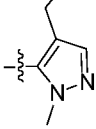
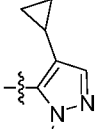
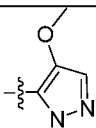
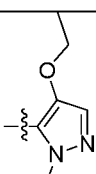
724	CF ₃		(500 MHz, Chloroform-d) δ 9.29 (d, J = 1.5 Hz, 1H), 8.38 (dd, J = 2.0, 1.5 Hz, 1H), 8.15 (dd, J = 7.5, 1.5 Hz, 1H), 8.13 (s, 1H), 7.88 – 7.70 (m, 2H), 7.54 – 7.41 (m, 1H), 5.43 (s, 1H).
725	CF ₃		(500 MHz, Chloroform-d) δ 8.92 (d, J = 5.5 Hz, 1H), 8.52 (d, J = 1.5 Hz, 1H), 8.35 (d, J = 5.5 Hz, 1H), 8.08 (dd, J = 7.5, 1.5 Hz, 1H), 7.50 (d, J = 7.5 Hz, 1H), 7.09 (s, 1H), 5.46 (s, 1H).
726	CF ₃		
727	CF ₃		(500 MHz, Chloroform-d) δ 9.42 (d, J = 1.5 Hz, 1H), 8.72 (d, J = 1.5 Hz, 1H), 8.37 (dd, J = 7.5, 1.5 Hz, 1H), 8.04 (dd, J = 7.5, 7.0 Hz, 1H), 7.94 (dd, J = 7.0, 1.5 Hz, 1H), 7.90 (s, 1H), 5.37 (s, 1H).
728	CF ₃		(500 MHz, Chloroform-d) δ 9.00 (s, 1H), 8.16 – 8.09 (m, 2H), 7.93 (d, J = 7.5 Hz, 1H), 7.66 (dd, J = 7.5, 7.0 Hz, 1H), 6.96 (s, 1H), 2.73 – 2.56 (m, 1H), 2.29 – 2.14 (m, 1H), 2.18 – 2.01 (m, 3H), 1.98 – 1.84 (m, 2H), 1.62 – 1.45 (m, 3H).
729	CF ₃		(500 MHz, Chloroform-d) δ 8.70 (d, J = 7.5 Hz, 1H), 8.44 (d, J = 1.5 Hz, 1H), 8.38 (s, 1H), 8.04 (s, 1H), 7.63 (dd, J = 7.5, 1.5 Hz, 1H), 3.95 (s, 3H).
730	CF ₃		(500 MHz, Chloroform-d) δ 8.70 (d, J = 1.5 Hz, 1H), 8.44 – 8.38 (m, 2H), 8.04 (s, 1H), 7.63 (dd, J = 7.5, 1.7 Hz, 1H), 3.95 (s, 3H).
731	CF ₃		(500 MHz, Chloroform-d) δ 8.52 (d, J = 7.5 Hz, 1H), 8.44 (dd, J = 7.5, 1.5 Hz, 1H), 8.14 – 8.08 (m, 2H), 8.03 (s, 1H), 7.69 (dd, J = 7.5, 1.5 Hz, 1H), 3.03 (s, 3H), 2.85 (s, 3H).
732	CF ₃		(500 MHz, Chloroform-d) δ 7.54 – 7.31 (m, 1H), 7.04 – 6.94 (m, 2H), 6.92 – 6.71 (m, 1H), 5.50 (s, 1H).
733	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 8.39-8.31 (m, 1H), 8.21-8.18 (m, 1H), 7.55-7.52 (m, 1H), 7.35 (s, 1H).
734	CF ₃		(500 MHz, Chloroform-d) δ 9.10 (dd, J = 7.5, 1.5 Hz, 1H), 8.29 – 8.16 (m, 2H), 7.99 – 7.72 (m, 2H), 7.52 – 7.39 (m, 1H), 7.17 (s, 1H).
735	CF ₃		(500 MHz, Chloroform-d) δ 7.35 (dd, J = 7.5, 7.0 Hz, 1H), 7.16 (dd, J = 7.5, 1.5 Hz, 1H), 7.09 (dd, J = 7.0, 1.5 Hz, 1H), 7.04 (s, 1H), 5.76 (s, 1H), 2.31 (s, 3H), 1.95 – 1.85 (m, 1H), 1.07 – 0.98 (m, 2H), 0.89 – 0.80 (m, 2H).
736	CF ₃		(500 MHz, Chloroform-d) δ 7.52 (dd, J = 11.0, 2.0 Hz, 1H), 7.44 – 7.21 (m, 1H), 7.30 – 7.25 (m, 2H), 7.07 (s, 1H), 5.50 (s, 1H).
737	CF ₃		(500 MHz, Chloroform-d) δ 7.61 – 7.52 (m, 2H), 7.48 – 7.40 (m, 2H), 7.04 (s, 1H), 5.69 (s, 1H).

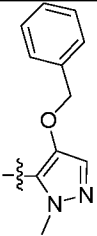
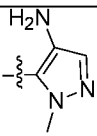
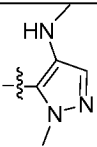
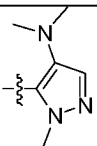
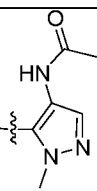
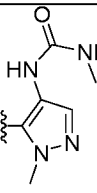
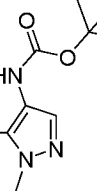
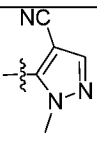
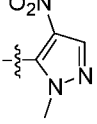
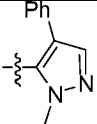
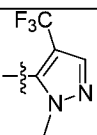
738	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.68 – 7.61 (m, 2H), 7.00 (s, 1H), 6.75 – 6.68 (m, 2H), 5.76 (s, 1H), 4.56 (s, 2H).
739	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.47 – 7.37 (m, 4H), 7.07 (s, 1H), 5.48 (s, 1H).
740	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.62 (dd, <i>J</i> = 5.5, 2.0 Hz, 1H), 7.36 – 7.25 (m, 1H), 7.16 (dd, <i>J</i> = 11.0, 7.5 Hz, 1H), 7.01 (s, 1H), 5.81 (s, 1H).
741	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.30 – 7.23 (m, 2H), 7.10 (s, 1H), 5.62 (s, 1H), 3.89 (s, 3H).
742	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.94 – 7.74 (m, 2H), 7.67 – 7.55 (m, 2H), 7.07 (s, 1H), 5.49 (s, 1H).
743	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 9.38 (d, <i>J</i> = 1.5 Hz, 1H), 8.16 (d, <i>J</i> = 1.5 Hz, 1H), 7.98 – 7.92 (m, 2H), 7.64 – 7.51 (m, 2H), 7.15 (s, 1H).
744	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.45 – 7.25 (m, 2H), 7.18 – 7.05 (m, 1H), 7.01 (s, 1H), 5.81 (s, 1H).
745	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.50 (dd, <i>J</i> = 7.5, 5.5 Hz, 1H), 7.45 (dd, <i>J</i> = 11.0, 2.0 Hz, 1H), 7.24 – 7.11 (m, 1H), 7.01 (s, 1H), 5.80 (s, 1H).
746	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.73 (d, <i>J</i> = 7.5 Hz, 2H), 7.54 (d, <i>J</i> = 7.5 Hz, 2H), 7.07 (s, 1H), 5.48 (s, 1H).
747	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.37 – 7.33 (m, 1H), 7.25 (dd, <i>J</i> = 7.5, 1.5 Hz, 1H), 7.14 (d, <i>J</i> = 7.5 Hz, 1H), 7.06 (s, 1H), 5.57 (s, 1H), 2.30 (s, 3H), 2.20 (s, 3H).
748	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.32 (d, <i>J</i> = 1.5 Hz, 1H), 7.26 – 7.17 (m, 2H), 7.03 (s, 1H), 5.67 (s, 1H), 2.50 (s, 3H), 2.35 (s, 3H).
749	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.53 (d, <i>J</i> = 7.5 Hz, 2H), 7.42 (d, <i>J</i> = 7.5 Hz, 2H), 7.06 (s, 1H), 5.49 (s, 1H), 2.45 (s, 3H).
750	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.57 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 8.27 – 8.16 (m, 1H), 7.95 – 7.71 (m, 2H), 7.03 (s, 1H), 5.85 (s, 1H).
751	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.76 (dd, <i>J</i> = 2.0, 1.5 Hz, 1H), 7.61 – 7.52 (m, 1H), 7.50 – 7.41 (m, 2H), 7.01 (s, 1H), 5.78 (s, 1H).
752	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.56 – 7.47 (m, 3H), 7.42 – 7.30 (m, 1H), 7.00 (s, 1H), 5.61 (s, 1H).
753	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.35 (d, <i>J</i> = 7.5 Hz, 1H), 7.20 (d, <i>J</i> = 7.5 Hz, 1H), 7.03 (s, 1H), 5.66 (s, 1H).
754	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.47 (d, <i>J</i> = 7.5 Hz, 2H), 7.09 – 7.03 (m, 3H), 5.49 (s, 1H), 4.00 (t, <i>J</i> = 7.5 Hz, 2H), 1.74 – 1.50 (m, 4H), 1.04 (t, <i>J</i> = 8.0 Hz, 3H).
755	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.09 (d, <i>J</i> = 2.0 Hz, 1H), 7.92 (dd, <i>J</i> = 7.5, 2.0 Hz, 1H), 7.83 (d, <i>J</i> = 7.5 Hz, 1H), 7.05 (s, 1H), 5.49 (s, 1H).

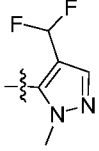
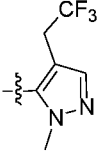
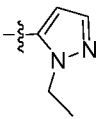
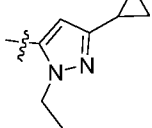
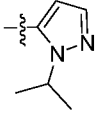
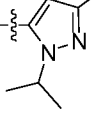
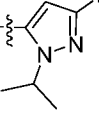
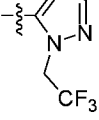
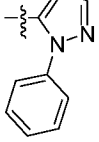
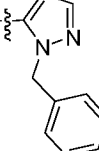
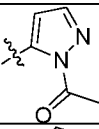
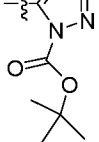
756	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.13 (d, J = 1.5 Hz, 1H), 7.78 – 7.70 (m, 2H), 7.05 (s, 1H), 5.54 (s, 1H).
757	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.80 (d, J = 2.0 Hz, 1H), 8.62 (dd, J = 7.5, 2.0 Hz, 1H), 8.11 (d, J = 7.5 Hz, 1H), 7.01 (s, 1H), 5.69 (s, 1H).
758	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.06 (d, J = 2.0 Hz, 1H), 7.75 (dd, J = 7.5, 2.0 Hz, 1H), 7.17 (d, J = 7.5 Hz, 1H), 7.08 (s, 1H), 5.29 (s, 1H), 4.02 (s, 3H).
759	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 8.48 (s, 2H), 7.02 (s, 1H), 5.86 (s, 1H), 3.97 (s, 3H).
760	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.87 (d, J = 1.5 Hz, 1H), 7.56 – 7.50 (m, 2H), 6.99 (s, 1H), 5.62 (s, 1H), 2.48 (s, 3H).
761	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.70 – 7.63 (m, 2H), 7.20 – 7.07 (m, 2H), 5.43 (s, 1H).
762	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.75 (s, 1H), 9.34 (d, J = 2.0 Hz, 1H), 8.69 (dd, J = 8.0, 2.0 Hz, 1H), 8.09 (d, J = 8.0 Hz, 1H), 7.38 (s, 1H).
763	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.77 (d, J = 2.0 Hz, 1H), 7.49 (d, J = 7.5 Hz, 1H), 7.43 (dd, J = 7.5, 2.0 Hz, 1H), 7.04 (s, 1H), 5.65 (s, 1H).
764	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.43 – 7.36 (m, 1H), 7.35 – 7.23 (m, 2H), 7.01 (s, 1H), 5.69 (s, 1H).
765	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.33 – 7.22 (m, 3H), 7.01 (s, 1H), 6.85 – 6.69 (m, 1H), 5.79 (s, 1H), 3.87 (s, 3H).
766	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.37 – 7.23 (m, 1H), 7.22 – 7.11 (m, 2H), 7.12 (s, 1H), 5.50 (s, 1H).
767	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.44 (s, 1H), 8.78 (s, 1H), 8.47 – 8.35 (m, 1H), 7.99 – 7.87 (m, 1H), 7.30 (s, 1H), 3.88 (s, 3H).
768	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.27 (s, 1H), 8.99 (d, J = 2.0 Hz, 1H), 8.42 (dd, J = 8.5, 2.0 Hz, 1H), 7.61 (d, J = 8.5 Hz, 1H), 7.25 (s, 1H).
769	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.80 (d, J = 2.5 Hz, 1H), 7.61 (dd, J = 7.5, 2.5 Hz, 1H), 7.53 (d, J = 7.5 Hz, 1H), 7.01 (s, 1H), 5.66 (s, 1H).
770	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.25 (s, 1H), 9.07 (d, J = 2.0 Hz, 1H), 8.67 (d, J = 2.5 Hz, 1H), 8.41 (dd, J = 2.5, 2.0 Hz, 1H), 7.24 (s, 1H).
771	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.30 (d, J = 2.0 Hz, 1H), 7.22 (dd, J = 7.5, 2.0 Hz, 1H), 7.06 – 6.98 (m, 2H), 6.07 (s, 2H), 5.78 (s, 1H).
772	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.65 (dd, J = 7.5, 2.0 Hz, 1H), 7.46 – 7.29 (m, 3H), 7.05 (s, 1H), 5.66 (s, 1H).

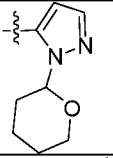
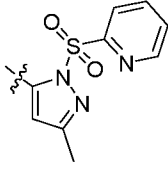
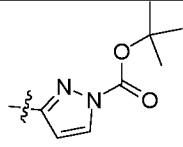
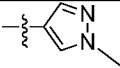
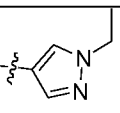
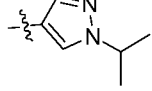
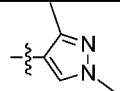
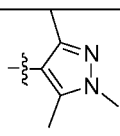
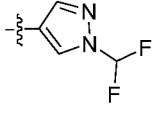
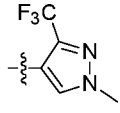
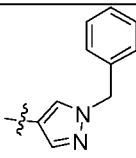
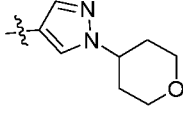
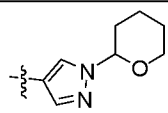
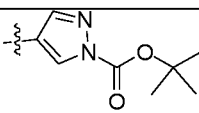
773	CF ₃		
774	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.27 (br, 1H), δ 7.61 (d, <i>J</i> = 1.5 Hz, 1H), 7.38 (s, 1H), 6.99 (d, <i>J</i> = 1.5 Hz, 1H), 4.09 (s, 3H).
775	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.38 (s, 1H), 7.07 (s, 1H), 6.70 (s, 1H), 3.86 (s, 3H).
776	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.19 (s, 1H), 7.15 (s, 1H), 6.87 (s, 1H), 3.90 (s, 3H).
777	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.40 (s, 1H), 7.34 (s, 1H), 6.97 (s, 1H), 3.87 (s, 3H).
778	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.38 (s, 1H), 7.37 (s, 1H), 6.80 (s, 1H), 3.76 (s, 3H).
779	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.27 (br, 1H), δ 7.32 (s, 1H), 6.68 (s, 1H), 3.91 (s, 3H), 2.19 (s, 3H).
780	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.64 (s, 1H), 6.90 (s, 1H), 6.60 (s, 1H), 3.88 (s, 3H), 2.60 (q, <i>J</i> = 8.0 Hz, 2H), 1.19 (t, <i>J</i> = 8.0 Hz, 3H).
781	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.48 (s, 1H), 6.93 (s, 1H), 6.37 (s, 1H), 3.76 (s, 3H), 1.87-1.73 (m, 1H), 1.20-0.91 (m, 2H), 0.75-0.68 (m, 2H).
782	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.25 (s, 1H), 6.85 (s, 1H), 5.96 (s, 1H), 3.92 (s, 3H), 3.84 (s, 3H).
783	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.26 (s, 1H), 6.90 (s, 1H), 5.86 (s, 1H), 4.39 (q, <i>J</i> = 8.0 Hz, 2H), 3.89 (s, 3H), 1.36 (t, <i>J</i> = 8.0 Hz, 3H).
784	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.64 (s, 1H), 7.47 – 7.39 (m, 2H), 7.18 – 7.11 (m, 2H), 7.03 – 6.94 (m, 2H), 6.06 (s, 1H), 4.65 (s, 2H), 3.83 (s, 3H).
785	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.23 (s, 1H), 7.21 (s, 1H), 6.86 (s, 1H), 3.88 (s, 3H), 3.55 (br, 2H).
786	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.66 (s, 1H), 8.17 (s, 1H), 6.95 (s, 1H), 6.26 (s, 1H), 3.91 (s, 3H), 3.03 (s, 3H).
787	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.45 (s, 1H), 6.85 (s, 1H), 6.36 (s, 1H), 3.94 (s, 3H), 3.19 (s, 6H).

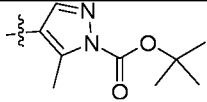
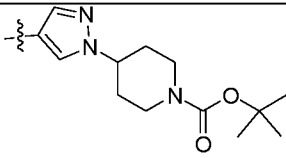
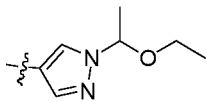
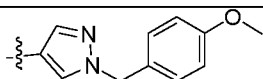
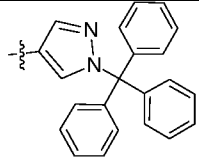
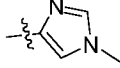
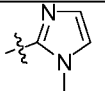
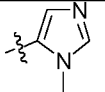
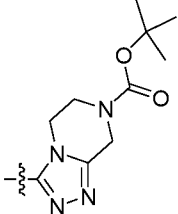
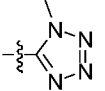
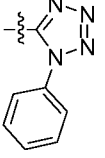
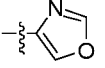
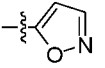
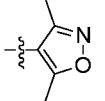
788	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.52 (s, 1H), 7.38 (s, 1H), 6.94 (s, 1H), 5.56 (s, 1H), 3.88 (s, 3H), 2.13 (s, 3H).
789	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.06 (s, 1H), 8.56 (s, 1H), 7.85 (s, 1H), 6.95 (s, 1H), 5.56 (s, 1H), 3.90 (s, 3H), 2.71 (s, 3H).
790	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.18 (s, 1H), 10.14 (s, 1H), 6.94 (s, 1H), 5.56 (s, 1H), 3.95 (s, 3H), 1.29 (s, 9H).
791	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.72 (s, 1H), 6.99 (s, 1H), 6.92 (s, 1H), 3.91 (s, 3H).
792	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.58 (s, 1H), 7.50 (s, 1H), 6.91 (s, 1H), 3.87 (s, 3H).
793	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.25 (s, 1H), 7.92 – 7.85 (m, 2H), 7.51 – 7.41 (m, 3H), 7.25 (s, 1H), 6.99 (s, 1H), 3.92 (s, 3H).
794	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.25 (s, 1H), 6.94 (t, <i>J</i> = 73.5 Hz, 1 H), 6.90 (s, 1H), 6.84 (s, 1H), 3.89 (s, 3H).
795	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.51 (s, 1H), 6.91 (s, 1H), 6.71 (s, 1H), 3.89 (s, 3H), 3.07 (s, 2H).
796	CF ₃		
797	CF ₃		
798	CF ₃		
799	CF ₃		
800	CF ₃		

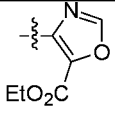
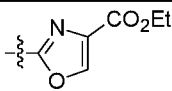
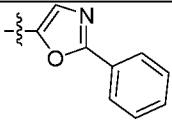
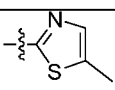
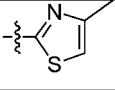
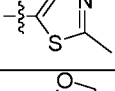
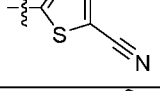
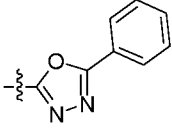
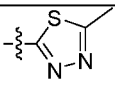
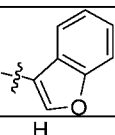
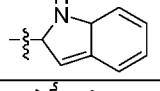
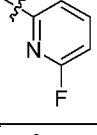
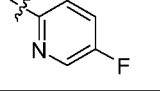
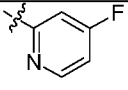
801	CF ₃		
802	CF ₃		
803	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.78 (s, 1H), 7.37 (s, 1H), 3.76 (s, 3H), 2.70 (s, 3H).
804	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.48 (s, 1H), 7.50 (s, 1H), 6.37 (s, 1H), 3.76 (s, 3H).
805	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.59 (s, 1H), 7.87 (s, 1H), 6.89 (s, 1H), 3.88 (s, 3H).
806	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.42 (s, 1H), 8.12 (s, 1H), 6.90 (s, 1H), 3.86 (s, 3H).
807	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.38 (s, 1H), 7.60 (s, 1H), 6.37 (s, 1H), 3.76 (s, 3H).
808	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.40 (s, 1H), 7.56 (s, 1H), 6.88 (s, 1H), 3.85 (s, 3H), 2.08 (s, 3H).
809	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.38 (s, 1H), 7.67 (s, 1H), 6.89 (s, 1H), 3.84 (s, 3H), 2.70 (q, <i>J</i> = 8.0 Hz, 2H), 1.17 (t, <i>J</i> = 8.0 Hz, 3H).
810	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.68 (s, 1H), 7.76 (s, 1H), 6.37 (s, 1H), 3.76 (s, 3H), 2.41-2.28 (m, 1H), 1.12 – 1.02 (m, 2H), 0.82 – 0.72 (m, 2H).
811	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.78 (s, 1H), 7.19 (s, 1H), 6.90 (s, 1H), 3.90 (s, 3H), 3.80 (s, 3H).
812	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.87 (s, 1H), 7.19 (s, 1H), 6.90 (s, 1H), 4.10 (q, <i>J</i> = 8.0 Hz, 2H), 3.90 (s, 3H), 1.34 (t, <i>J</i> = 8.0 Hz, 3H).

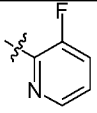
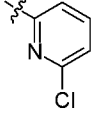
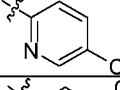
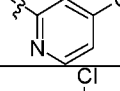
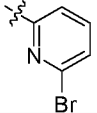
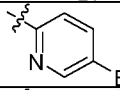
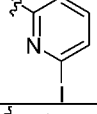
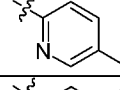
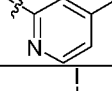
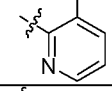
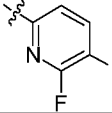
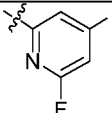
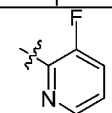
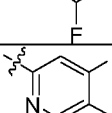
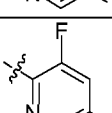
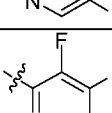
813	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.78 (s, 1H), 7.50 – 7.44 (m, 2H), 7.41 – 7.27 (m, 4H), 6.95 (s, 1H), 5.15 (s, 2H), 3.91 (s, 3H).
814	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.03 (s, 1H), 7.70 (s, 1H), 6.86 (s, 1H), 5.83 (s, 2H), 3.89 (s, 3H).
815	CF ₃		
816	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.35 (s, 1H), 7.71 (s, 1H), 6.90 (s, 1H), 3.89 (s, 3H), 2.86 (s, 6H).
817	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.03 (s, 1 H) 9.96 (s, 1H), 7.87 (s, 1H), 6.95 (s, 1H), 3.92 (s, 3H), 2.07 (s, 3H).
818	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.66 (s, 1H), 8.60 (s, 1H), 7.87 (s, 1H), 6.97 (s, 1H), 6.16 (s, 1H), 3.93 (s, 3H), 2.68 (s, 3H).
819	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.35 (s, 1H), 9.78 (s, 1H), 7.87 (s, 1H), 6.95 (s, 1H), 3.92 (s, 3H), 1.49 (s, 9H).
820	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.21 (s, 1H), 7.92 (s, 1H), 6.92 (s, 1H), 3.87 (s, 3H).
821	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.45 (s, 1H), 8.27 (s, 1H), 6.89 (s, 1H), 3.89 (s, 3H).
822	CF ₃		
823	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.10 (s, 1H), 7.82 (s, 1H), 6.92 (s, 1H), 3.85 (s, 3H).

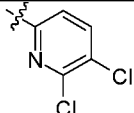
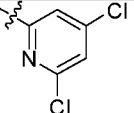
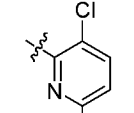
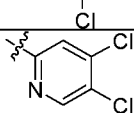
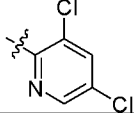
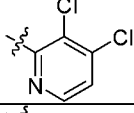
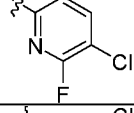
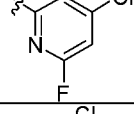
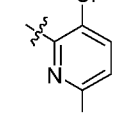
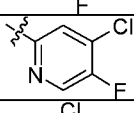
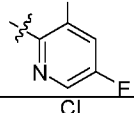
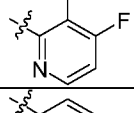
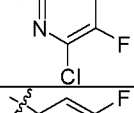
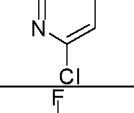
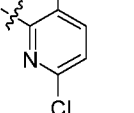
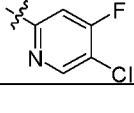
824	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.36 (s, 1H), 7.91 (s, 1H), 6.95 (s, 1H), 6.67 (t, <i>J</i> = 73.5 Hz, 1H), 3.83 (s, 3H).
825	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.16 (s, 1H), 7.77 (s, 1H), 6.93 (s, 1H), 3.83 (s, 3H), 3.07 (s, 2H).
826	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.89 (s, 1H), 7.61 (d, <i>J</i> = 2.5 Hz, 1H), 7.15 (s, 1H), 6.84 (d, <i>J</i> = 2.5 Hz, 1H), 3.68 (q, <i>J</i> = 8.0 Hz, 2H), 1.53 (t, <i>J</i> = 8.0 Hz, 3H).
827	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.78 (s, 1H), 7.16 (s, 1H), 6.37 (s, 1H), 4.08 (q, <i>J</i> = 8.0 Hz, 2H), 1.87-1.76 (m, 1H), 1.30 (t, <i>J</i> = 8.0 Hz, 3H), 1.12-0.88 (m, 2H), 0.71-0.63 (m, 2H).
828	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.57 (s, 1H), 7.60 (d, <i>J</i> = 2.0 Hz, 1H), 7.03 (s, 1H), 6.73 (d, <i>J</i> = 2.0 Hz, 1H), 4.15-3.82 (m, 1H), 1.26 (d, <i>J</i> = 6.5 Hz, 6H).
829	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.76 (s, 1H), 7.06 (s, 1H), 6.78 (s, 1H), 4.56-4.23 (m, 1H), 2.39 (s, 3H), 1.26 (d, <i>J</i> = 4.5 Hz, 6H).
830	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.08 (s, 1H), 7.17 (d, <i>J</i> = 8.5 Hz, 1H), 6.50 (s, 1H), 4.46-4.09 (m, 1H), 1.40 (d, <i>J</i> = 4.5 Hz, 6H).
831	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.51 (s, 1H), 7.64 (d, <i>J</i> = 2.5 Hz, 1H), 6.91 (s, 1H), 6.68 (d, <i>J</i> = 2.5 Hz, 1H), 5.32 (s, 2H).
832	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.11 (s, 1H), 7.96 (d, <i>J</i> = 2.5 Hz, 1H), 7.65-7.51 (m, 2H), 7.46 – 7.24 (m, 2H), 7.12 – 7.01 (m, 2H), 6.83 (s, 1H).
833	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.63 (s, 1H), 7.64 (d, <i>J</i> = 2.0 Hz, 1H), 7.55-7.15 (m, 2H), 7.32 – 7.24 (m, 1H), 7.22 – 7.16 (m, 2H), 6.90 (s, 1H), 6.62 (d, <i>J</i> = 2.0 Hz, 1H), 5.46 (s, 2H).
834	CF ₃		¹ H NMR (500 MHz, Chloroform- <i>d</i>) δ 7.84 (d, <i>J</i> = 2.5 Hz, 1H), 7.21 (s, 1H), 6.68 (d, <i>J</i> = 2.5 Hz, 1H), 5.49 (s, 1H), 2.54 (s, 3H).
835	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.13 (s, 1H), 8.11 (d, <i>J</i> = 2.5 Hz, 1H), 6.97 (d, <i>J</i> = 2.5 Hz, 1H), 6.90 (s, 1H), 1.61 (s, 9H).

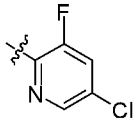
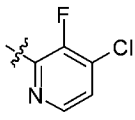
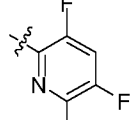
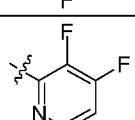
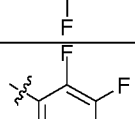
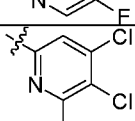
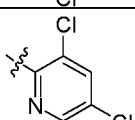
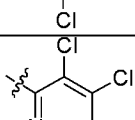
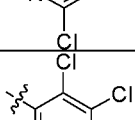
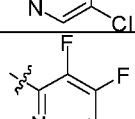
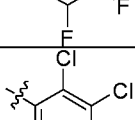
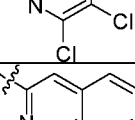
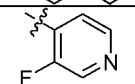
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837	CF ₃		
838	CF ₃		
839	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.25 (s, 1H), 8.53 (s, 1H), 8.18 (s, 1H), 7.23 (s, 1H), 3.92 (s, 3H).
840	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.83 (s, 1H), 8.56 (s, 1H), 8.20 (s, 1H), 7.20 (s, 1H), 4.22 (q, <i>J</i> = 7.2 Hz, 2H), 1.40 (t, <i>J</i> = 7.2 Hz, 3H).
841	CF ₃		
842	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.66 (s, 1H), 8.44 (s, 1H), 7.22 (s, 1H), 3.83 (s, 3H), 3.31 (s, 3H).
843	CF ₃		
844	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) 13.52 (s, 1H), 8.99 (s, 1H), 8.50 (s, 1H), 7.92 (t, <i>J</i> = 58.5 Hz, 1H), 7.23 (s, 1H).
845	CF ₃		
846	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.27 (br, 1H), 8.68 (s, 1H), 8.24 (s, 1H), 7.72 – 6.70 (m, 6H), 5.43 (s, 2H).
847	CF ₃		
848	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.87 (s, 1H), 7.81 (s, 1H), 7.19 (s, 1H), 6.97 (s, 1H), 5.36 (t, <i>J</i> = 6.8 Hz, 1H), 3.90-3.77 (m, 2H), 2.13-2.01 (m, 2H), 1.85 – 1.68 (m, 2H), 1.67 – 1.50 (m, 2H).
849	CF ₃		

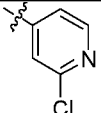
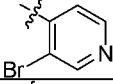
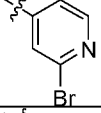
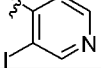
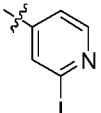
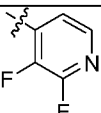
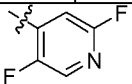
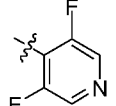
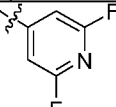
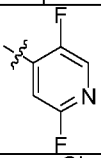
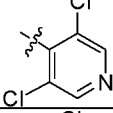
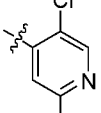
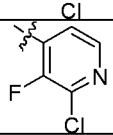
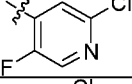
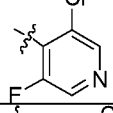
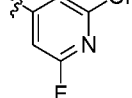
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851	CF ₃		
852	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.84 (s, 1H), 8.68 (s, 1H), 8.27 (s, 1H), 7.22 (s, 1H), 5.67 (q, <i>J</i> = 6.0 Hz, 1H), 3.45 (q, <i>J</i> = 7.0 Hz, 1H), 3.21 (dq, <i>J</i> = 14.2, 7.0 Hz, 1H), 1.62 (d, <i>J</i> = 6.0 Hz, 3H), 1.03 (t, <i>J</i> = 7.0 Hz, 3H).
853	CF ₃		
854	CF ₃		
855	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.54 (s, 1H), 7.72 (s, 1H), 7.45 (s, 1H), 6.87 (s, 1H), 3.68 (s, 3H).
856	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.93 (s, 1H), 7.40 (d, <i>J</i> = 2.5 Hz, 1H), 7.10 (d, <i>J</i> = 2.5 Hz, 1H), 6.87 (s, 1H), 3.94 (s, 3H).
857	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.24 (s, 1H), 7.75 (s, 1H), 7.58 (s, 1H), 6.91 (s, 1H), 3.79 (s, 3H).
858	CF ₃		
859	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.00 (s, 1H), 6.89 (s, 1H), 4.19 (s, 3H).
860	CF ₃		
861	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.13 (s, 1H), 8.26 (s, 1H), 8.00 (s, 1H), 6.88 (s, 1H).
862	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.60 (s, 1H), 8.23 (d, <i>J</i> = 2.0 Hz, 1H), 7.41 (d, <i>J</i> = 2.0 Hz, 1H), 6.89 (s, 1H).
863	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.86 (br, 1H), 7.26 (s, 1H), 2.38 (s, 3H), 2.20 (s, 3H).

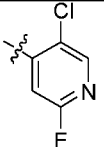
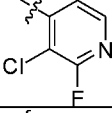
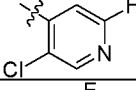
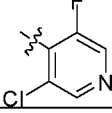
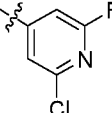
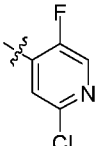
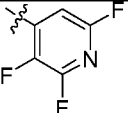
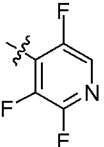
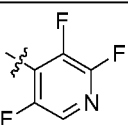
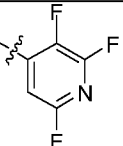
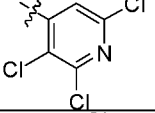
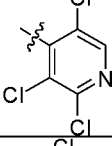
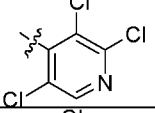
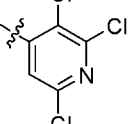
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865	CF ₃		
866	CF ₃		
867	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.66 (s, 1H), 8.05 (d, <i>J</i> = 2.5 Hz, 1H), 7.56 (d, <i>J</i> = 2.5 Hz, 1H), 6.88 (s, 1H).
868	CF ₃		
869	CF ₃		
870	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.83 (s, 1H), 9.24 (s, 1H), 8.24 (s, 1H), 6.89 (s, 1H).
871	CF ₃		
872	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.70 (s, 1H), 7.94 (s, 1H), 6.84 (s, 1H).
873	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.26 (br, 1H), 7.35 (s, 1H), 7.29 (s, 1H), 4.08 (s, 3H).
874	CF ₃		
875	CF ₃		
876	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.86 (s, 1H), 9.07 (s, 1H), 8.50 (d, <i>J</i> = 6.5 Hz, 1H), 7.70 (d, <i>J</i> = 7.5 Hz, 1H), 7.50 – 7.34 (m, 2H), 7.21 (s, 1H).
877	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.91 (s, 1H), 7.63 (d, <i>J</i> = 8.0 Hz, 1H), 7.54 (s, 1H), 7.51 (d, <i>J</i> = 8.0 Hz, 1H), 7.25 (s, 1H), 7.17 (m, 1H), 7.00 (m, 1H).
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879	CF ₃		
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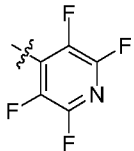
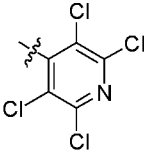
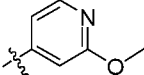
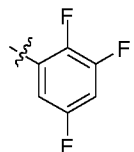
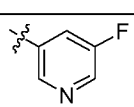
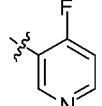
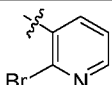
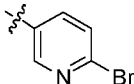
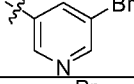
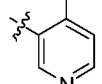
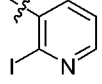
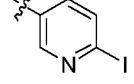
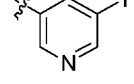
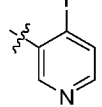
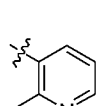
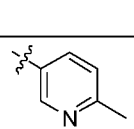
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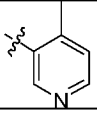
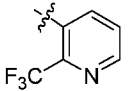
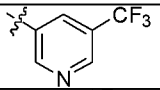
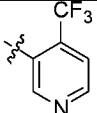
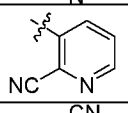
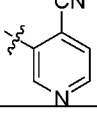
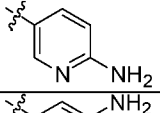
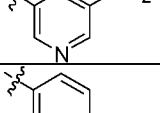
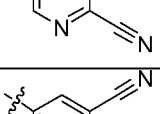
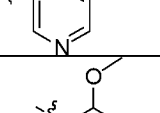
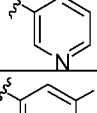
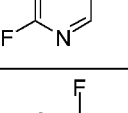
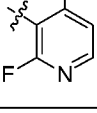
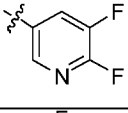
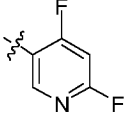
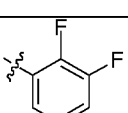
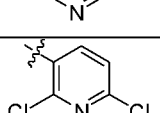
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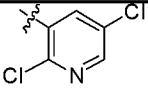
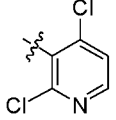
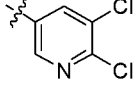
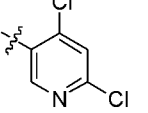
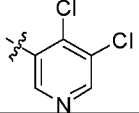
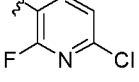
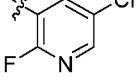
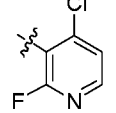
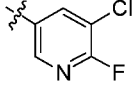
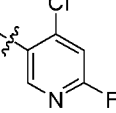
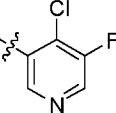
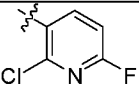
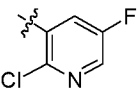
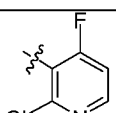
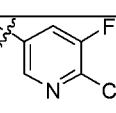
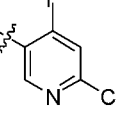
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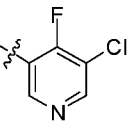
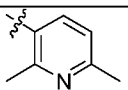
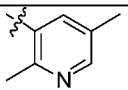
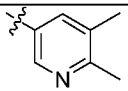
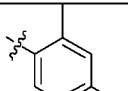
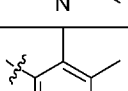
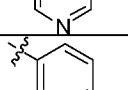
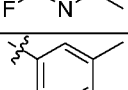
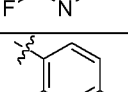
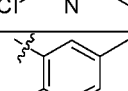
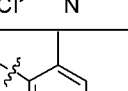
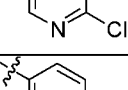
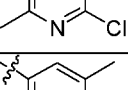
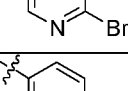
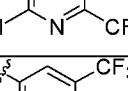
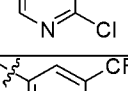
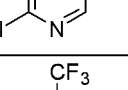
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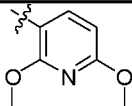
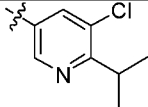
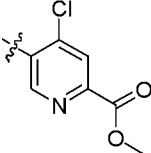
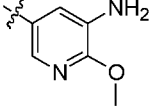
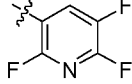
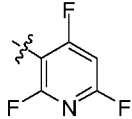
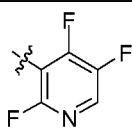
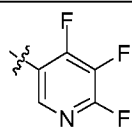
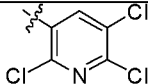
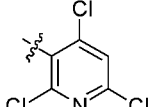
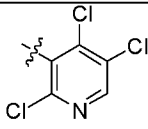
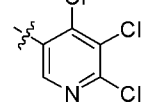
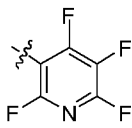
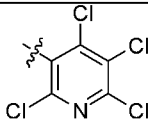
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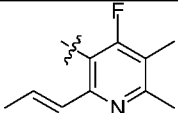
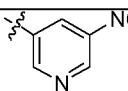
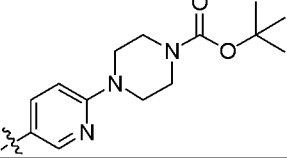
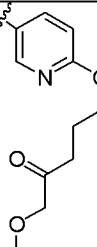
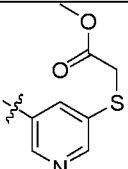
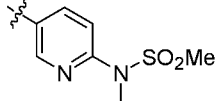
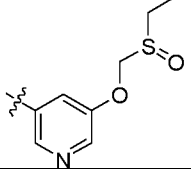
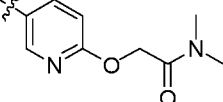
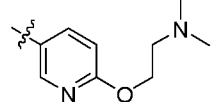
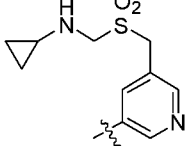
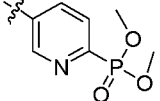
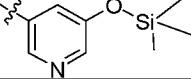
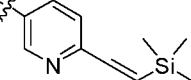
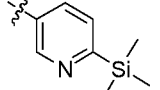
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960	CF ₃		
961	CF ₃		
962	CF ₃		
963	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 12.59 (s, 1H), 8.66 (d, <i>J</i> = 1.5 Hz, 1H), 8.36 (dd, <i>J</i> = 8.0, 1.5 Hz, 1H), 7.66 (m, 1H), 7.24 (s, 1H).
964	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 12.67 (s, 1H), 8.84 (d, <i>J</i> = 5.0 Hz, 1H), 8.58 (m, 1H), 7.23 (s, 1H), 7.17 (dd, <i>J</i> = 8.0, 5.0 Hz, 1H).
965	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 12.98 (s, 1H), 8.46 (dd, <i>J</i> = 5.0, 1.5 Hz, 1H), 7.99 (dd, <i>J</i> = 8.0, 1.5 Hz, 1H), 7.61 (dd, <i>J</i> = 8.1, 5.0 Hz, 1H), 7.28 (s, 1H).
966	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.62 (s, 1H), 8.99 (d, <i>J</i> = 2.5 Hz, 1H), 8.34 (dd, <i>J</i> = 8.5, 2.5 Hz, 1H), 7.81 (d, <i>J</i> = 8.5 Hz, 1H), 7.30 (s, 1H).
967	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.73 (s, 1H), 9.14 (s, 1H), 8.82 (s, 1H), 8.59 (s, 1H), 7.32 (s, 1H).
968	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 12.66 (s, 1H), 8.82 (s, 1H), 8.56 (d, <i>J</i> = 5.0 Hz, 1H), 7.68 (d, <i>J</i> = 5.0 Hz, 1H), 7.28 (s, 1H).
969	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.12 (s, 1H), 8.26 (dd, <i>J</i> = 5.0, 1.5 Hz, 1H), 7.77 (dd, <i>J</i> = 8.0, 1.5 Hz, 1H), 7.50 (dd, <i>J</i> = 8.0, 5.0 Hz, 1H), 7.26 (s, 1H).
970	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 12.87 (s, 1H), 8.59 (d, <i>J</i> = 1.0 Hz, 1H), 7.82 (d, <i>J</i> = 7.5 Hz, 1H), 7.70 (dd, <i>J</i> = 7.5, 1.0 Hz, 1H), 7.28 (s, 1H).
971	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.17 (s, 1H), 8.99 (d, <i>J</i> = 1.0 Hz, 1H), 8.87 (d, <i>J</i> = 1.0 Hz, 1H), 8.31 (s, 1H), 7.23 (s, 1H).
972	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 12.97 (s, 1H), 8.61 (s, 1H), 8.32 (d, <i>J</i> = 5.0 Hz, 1H), 7.80 (d, <i>J</i> = 5.0 Hz, 1H), 7.29 (s, 1H).
973	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.62 (s, 1H), 8.55 (dd, <i>J</i> = 5.0, 1.5 Hz, 1H), 7.76 (dd, <i>J</i> = 7.5, 1.5 Hz, 1H), 7.35 (dd, <i>J</i> = 7.5, 5.0 Hz, 1H), 7.30 (s, 1H), 2.32 (s, 3H).
974	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.41 (s, 1H), 9.07 (d, <i>J</i> = 2.0 Hz, 1H), 8.30 (dd, <i>J</i> = 8.0, 2.0 Hz, 1H), 7.41 (d, <i>J</i> = 8.0 Hz, 1H), 7.26 (s, 1H), 2.54 (s, 3H).

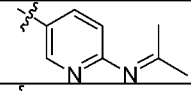
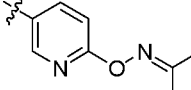
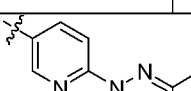
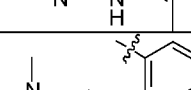
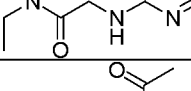
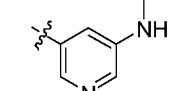
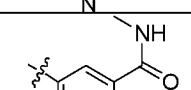
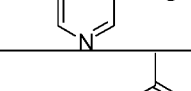
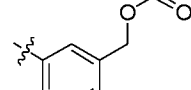
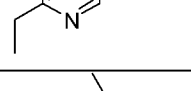
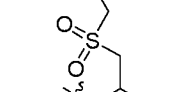
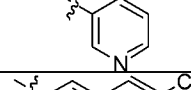
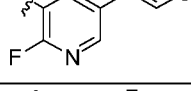
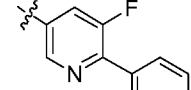
975	CF ₃		¹ H NMR (500 MHz, Chloroform- <i>d</i>) δ 8.73 (s, 1H), 8.61 (d, <i>J</i> = 5.0 Hz, 1H), 7.26 (d, <i>J</i> = 5.0 Hz, 1H), 6.94 (s, 1H), 5.64 (s, 1H), 2.36 (s, 3H).
976	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.78 (s, 1H), 8.93-8.92 (m, 1H), 8.49-8.45 (m, 1H), 8.34-8.33 (m, 1H), 7.35 (s, 1H).
977	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.65 (s, 1H), 9.44 (s, 1H), 9.10 (s, 1H), 8.75 (s, 1H), 7.33 (s, 1H).
978	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.88 (s, 1H), 8.85 (s, 1H), 8.70 (d, <i>J</i> = 5.0 Hz, 1H), 7.58 – 7.53 (m, 1H), 7.28 (s, 1H).
979	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.37 (s, 1H), 8.85 (dd, <i>J</i> = 5.0, 1.5 Hz, 1H), 8.22 (dd, <i>J</i> = 8.1, 1.5 Hz, 1H), 7.92 (dd, <i>J</i> = 7.9, 5.0 Hz, 1H), 7.28 (s, 1H).
980	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.27 (s, 1H), 9.09 (s, 1H), 8.88 (d, <i>J</i> = 5.0 Hz, 1H), 7.86 (d, <i>J</i> = 5.0 Hz, 1H), 7.25 (s, 1H).
981	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 8.84 (d, <i>J</i> = 2.5 Hz, 1H), 8.22 (dd, <i>J</i> = 8.5, 2.5 Hz, 1H), 7.16 (s, 1H), 6.76 (s, 2H), 6.62 (d, <i>J</i> = 8.5 Hz, 1H).
982	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 8.47 (s, 1H), 7.99 (s, 1H), 7.75 (s, 1H), 7.15 (s, 1H).
983	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.53 (s, 1H), 9.31 (d, <i>J</i> = 2.0 Hz, 1H), 8.63 (dd, <i>J</i> = 8.0, 2.0 Hz, 1H), 8.18 (d, <i>J</i> = 8.0 Hz, 1H), 7.33 (s, 1H).
984	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.84 (s, 1H), 9.40 (s, 1H), 9.14 (s, 1H), 8.84 (s, 1H), 7.34 (s, 1H).
985	CF ₃		
986	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.02 (s, 1H), 8.43-8.35 (dd, <i>J</i> = 8.0, 1.0 Hz, 1H), 7.84-7.81 (m, 1H), 7.24 (s, 1H).
987	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.22 (s, 1H), 8.45-8.41 (m, 1H), 7.25 – 7.18 (m, 2H).
988	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.14 (s, 1H), 8.58-8.43 (m, 1H), 7.91-7.88 (m, 1H), 7.24 (s, 1H).
989	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.02 (s, 1H), 8.76-8.63 (m, 1H), 7.24 (s, 1H), 7.01 (m, 1H).
990	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.22 (s, 1H), 8.66-8.42 (m, 1H), 8.35-8.23 (m, 1H), 7.36 (s, 1H).
991	CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.15 (s, 1H), 8.16 (d, <i>J</i> = 8.0 Hz, 1H), 7.43 (d, <i>J</i> = 8.0 Hz, 1H), 7.24 (s, 1H).

992	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.01 (s, 1H), 8.60 (d, <i>J</i> = 1.5 Hz, 1H), 8.12 (d, <i>J</i> = 1.5 Hz, 1H), 7.24 (s, 1H).
993	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.08 (s, 1H), 8.59 (d, <i>J</i> = 5.0 Hz, 1H), 7.59 (d, <i>J</i> = 5.0 Hz, 1H), 7.24 (s, 1H).
994	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 12.99 (s, 1H), 8.95 (d, <i>J</i> = 1.5 Hz, 1H), 8.23 (d, <i>J</i> = 1.5 Hz, 1H), 7.24 (s, 1H).
995	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.41 (s, 1H), 8.88 (s, 1H), 7.68 (s, 1H), 7.24 (s, 1H).
996	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.25 (s, 1H), 8.77 (d, <i>J</i> = 1.5 Hz, 1H), 8.49 (d, <i>J</i> = 1.5 Hz, 1H), 7.24 (s, 1H).
997	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.38 (s, 1H), 8.29 (dd, <i>J</i> = 8.5, 7.5 Hz, 1H), 7.71 (d, <i>J</i> = 7.5 Hz, 1H), 7.36 (s, 1H).
998	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.31 (s, 1H), 8.43 (dd, <i>J</i> = 7.5, 1.0 Hz, 1H), 8.21 (dd, <i>J</i> = 5.0, 1.0 Hz, 1H), 7.24 (s, 1H).
999	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.22 (s, 1H), 8.42 (dd, <i>J</i> = 6.0, 5.0 Hz, 1H), 7.50 (d, <i>J</i> = 5.0 Hz, 1H), 7.23 (s, 1H).
1000	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.45 (s, 1H), 8.79 (dd, <i>J</i> = 6.5, 1.0 Hz, 1H), 8.30 (dd, <i>J</i> = 5.0, 1.0 Hz, 1H), 7.24 (s, 1H).
1001	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 12.88 (s, 1H), 8.71 (d, <i>J</i> = 5.5 Hz, 1H), 7.31 (d, <i>J</i> = 7.5 Hz, 1H), 7.24 (s, 1H).
1002	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.13 (s, 1H), 8.55 (s, 1H), 8.36 (d, <i>J</i> = 8.0 Hz, 1H), 7.24 (s, 1H).
1003	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.17 (s, 1H), 8.27 (dd, <i>J</i> = 8.0, 5.0 Hz, 1H), 7.24 (s, 1H), 7.07 (dd, <i>J</i> = 9.5, 8.0 Hz, 1H).
1004	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.05 (s, 1H), 8.60 (dd, <i>J</i> = 8.0, 1.0 Hz, 1H), 7.74 (dd, <i>J</i> = 5.5, 1.0 Hz, 1H), 7.24 (s, 1H).
1005	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.09 (s, 1H), 8.62 (dd, <i>J</i> = 6.5, 5.0 Hz, 1H), 7.30 (dd, <i>J</i> = 8.0, 5.0 Hz, 1H), 7.23 (s, 1H).
1006	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.18 (s, 1H), 8.75 (d, <i>J</i> = 1.0 Hz, 1H), 7.83 (dd, <i>J</i> = 8.0, 1.0 Hz, 1H), 7.24 (s, 1H).
1007	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.27 (s, 1H), 8.93 (d, <i>J</i> = 5.0 Hz, 1H), 7.38 (d, <i>J</i> = 8.0 Hz, 1H), 7.23 (s, 1H).

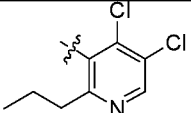
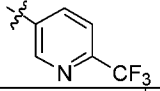
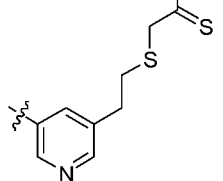
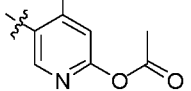
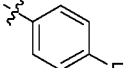
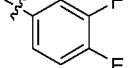
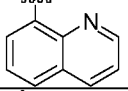
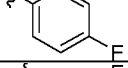
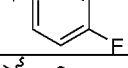
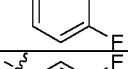
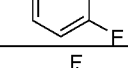
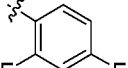
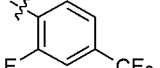
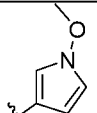
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1009	CF ₃		
1010	CF ₃		
1011	CF ₃		
1012	CF ₃		
1013	CF ₃		
1014	CF ₃		
1015	CF ₃		
1016	CF ₃		
1017	CF ₃		
1018	CF ₃		¹ H NMR (500 MHz, DMSO-d ₆) δ 13.15 (s, 1H), 8.36 (s, 1H), 7.57 (s, 1H), 7.34 (s, 1H), 2.20 (s, 3H).
1019	CF ₃		
1020	CF ₃		
1021	CF ₃		
1022	CF ₃		
1023	CF ₃		
1024	CF ₃		

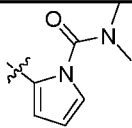
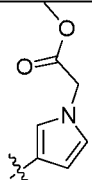
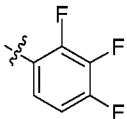
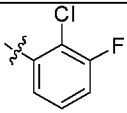
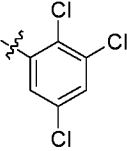
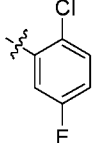
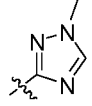
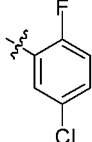
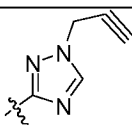
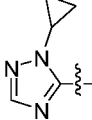
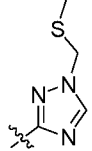
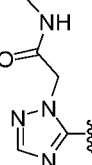
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1026	CF ₃		
1027	CF ₃		
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1029	CF ₃		
1030	CF ₃		
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1032	CF ₃		
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1038	CF ₃		

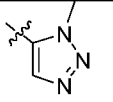
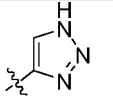
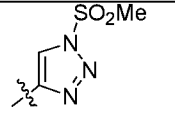
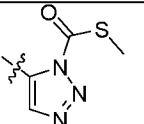
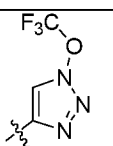
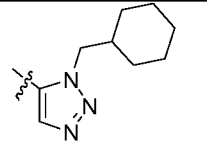
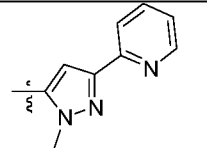
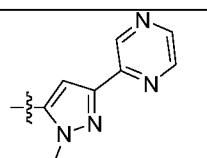
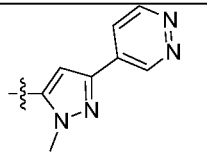
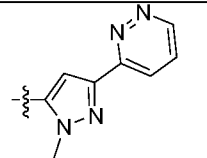
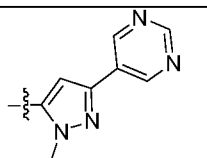
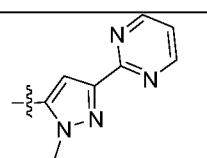
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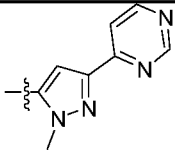
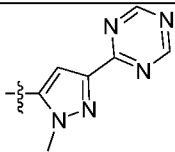
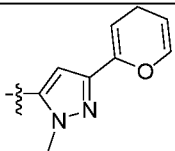
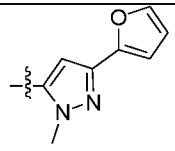
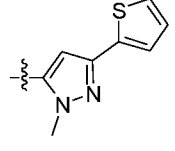
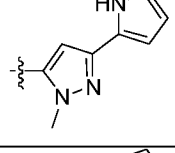
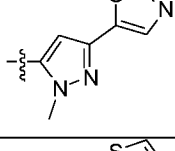
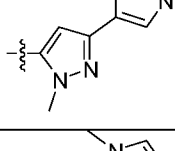
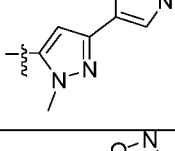
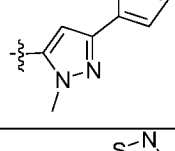
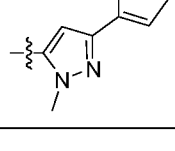
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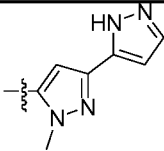
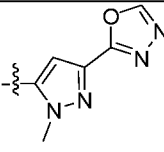
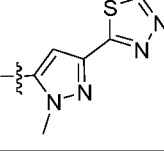
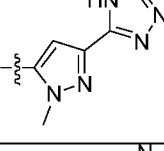
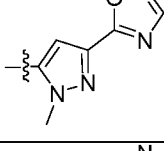
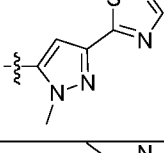
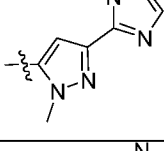
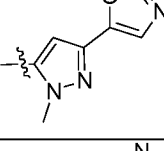
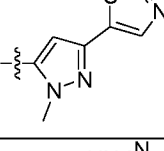
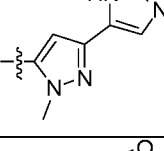
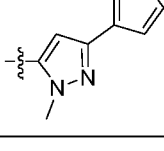
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1069	CF ₃		
1070	CF ₂ CF ₃		
1071	CF ₂ CF ₃		
1072	CF ₂ CF ₃		
1073	CH ₂ F		
1074	CH ₂ F		
1075	CH ₂ F		
1076	CH ₂ F		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.15 (s, 1H), 8.43 – 8.33 (m, 1H), 7.99 – 7.80 (m, 1H), 7.74 – 7.55 (m, 1H), 6.95 (s, 1H), 5.40 (d, <i>J</i> = 65.0 Hz, 2H).
1077	CH ₂ F		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.18 (s, 1H), 8.73 (dd, <i>J</i> = 4.5, 1.5 Hz, 1H), 7.80 – 7.71 (m, 2H), 6.96 (s, 1H), 5.40 (d, <i>J</i> = 65.0 Hz, 2H), 1.87 – 1.81 (m, 1H), 0.77 – 0.65 (m, 2H), 0.62 – 0.55 (m, 2H).
1078	CH ₂ F		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.00 (s, 1H), 8.47 (dd, <i>J</i> = 5.5, 1.0 Hz, 1H), 8.14 (dd, <i>J</i> = 7.0, 1.0 Hz, 1H), 7.04 (s, 1H), 5.40 (d, <i>J</i> = 65.0 Hz, 2H), 3.07 (q, <i>J</i> = 9.0 Hz, 2H).
1079	CHF ₂		
1080	CHF ₂		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.18 (s, 1H), 8.26 (dd, <i>J</i> = 8.0, 5.0 Hz, 1H), 7.82 (d, <i>J</i> = 8.0 Hz, 1H), 6.96 (s, 1H), 6.60 (t, <i>J</i> = 73.5 Hz, 1H), 5.30 (s, 1H).
1081	CF ₂ CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.05 (s, 1H), 8.43 – 8.35 (m, 1H), 8.04 – 7.90 (m, 1H), 7.75 – 7.61 (m, 1H), 7.00 (s, 1H).
1082	CF ₂ CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 12.97 (s, 1H), 9.16 (d, <i>J</i> = 1.5 Hz, 1H), 8.18 (dd, <i>J</i> = 8.0, 1.5 Hz, 1H), 7.74 (d, <i>J</i> = 8.0 Hz, 1H), 6.96 (s, 1H), 3.00 (d, <i>J</i> = 7.0 Hz, 2H), 1.73 – 1.52 (m, 4H), 1.56 – 1.37 (m, 2H), 1.33 – 1.14 (m, 5H).

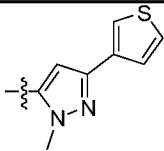
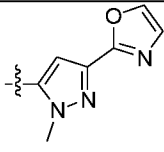
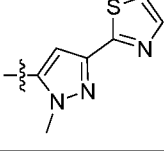
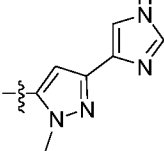
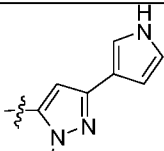
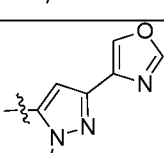
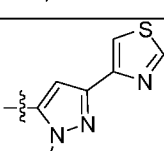
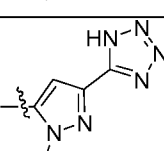
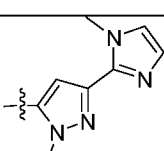
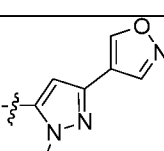
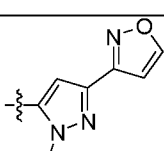
1083	CF ₂ CF ₃		¹ H NMR (500 MHz, DMSO- <i>d</i> ₆) δ 13.14 (s, 1H), 8.81 (s, 1H), 6.89 (s, 1H), 2.98 (t, <i>J</i> = 7.5 Hz, 2H), 1.70 – 1.55 (m, 2H), 0.92 (t, <i>J</i> = 8.0 Hz, 3H).
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1085	CHF ₂		
1086	CHF ₂		
1087	CH ₂ F		
1088	CH ₂ F		
1089	CHF ₂		
1090	CHF ₂		
1091	CHF ₂		
1092	CF ₂ CF ₃		
1093	CF ₂ CF ₃		
1094	CF ₂ CF ₃		
1095	CF ₂ CF ₃		
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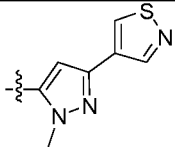
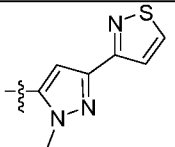
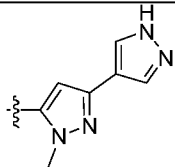
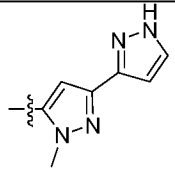
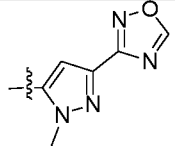
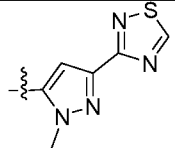
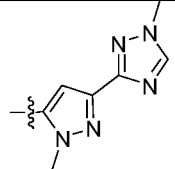
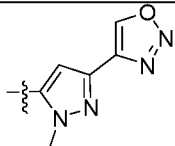
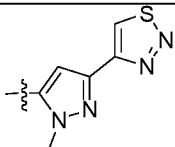
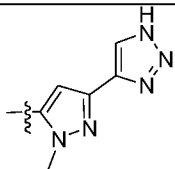
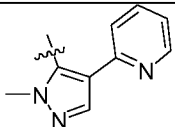
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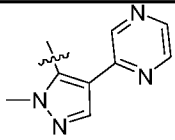
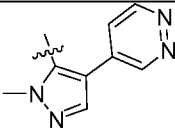
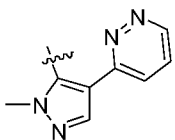
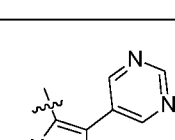
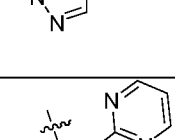
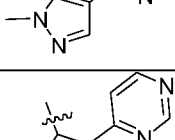
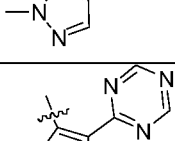
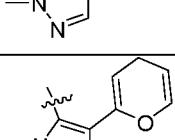
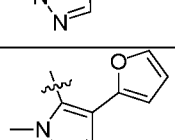
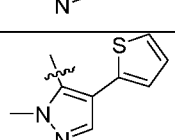
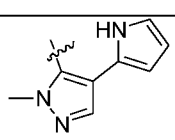
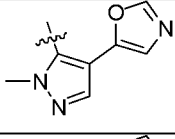
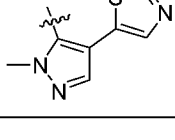
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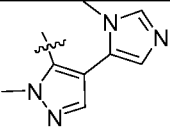
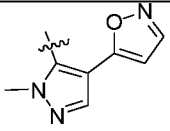
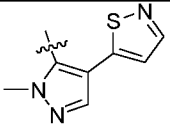
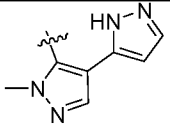
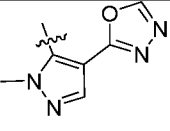
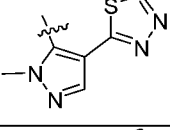
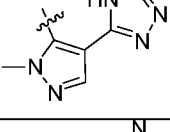
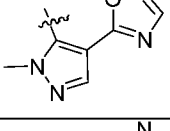
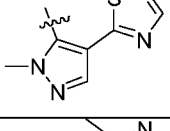
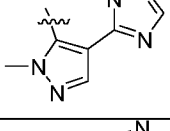
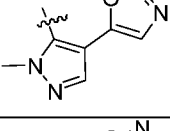
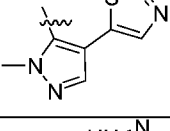
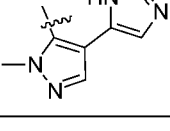
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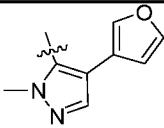
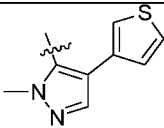
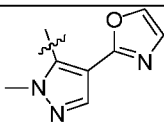
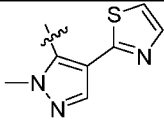
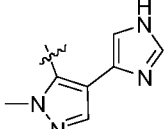
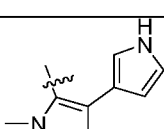
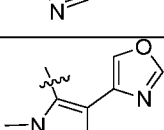
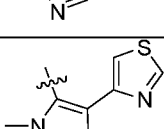
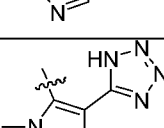
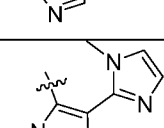
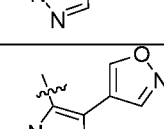
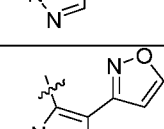
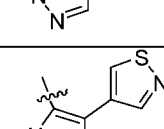
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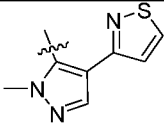
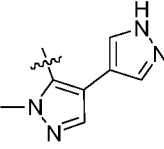
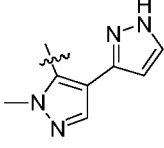
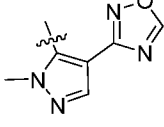
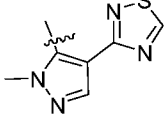
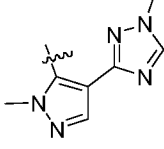
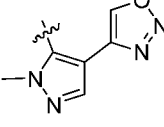
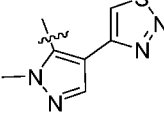
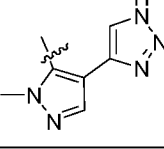
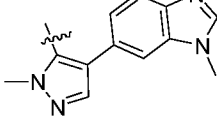
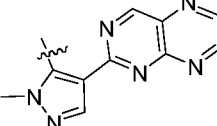
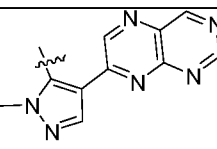
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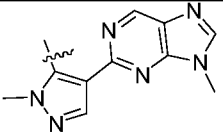
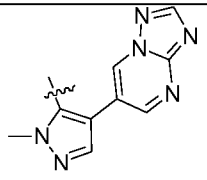
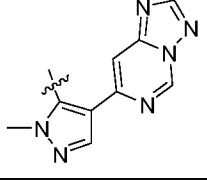
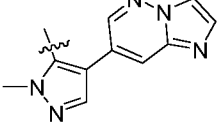
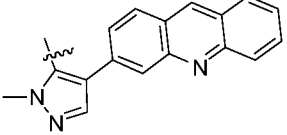
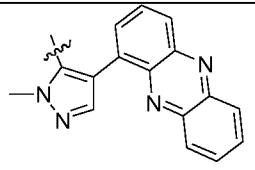
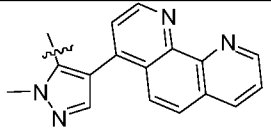
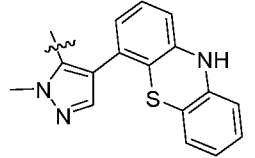
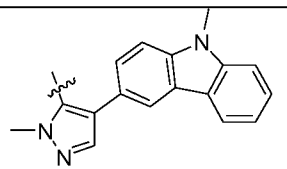
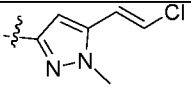
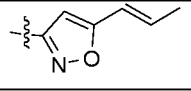
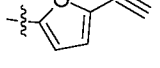
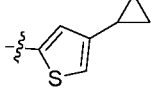
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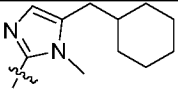
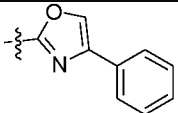
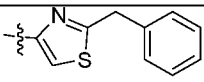
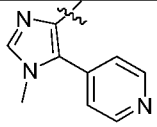
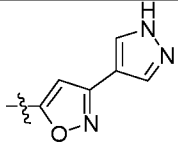
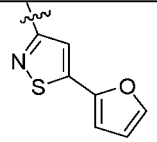
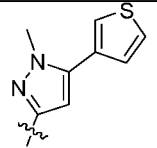
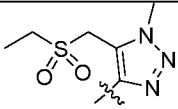
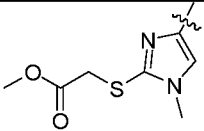
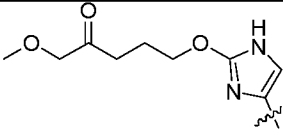
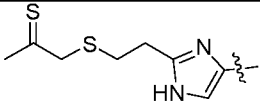
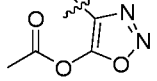
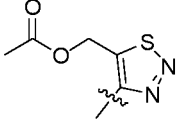
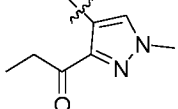
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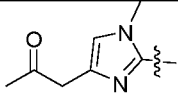
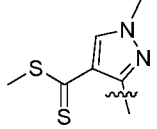
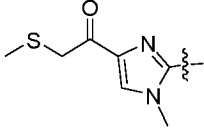
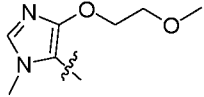
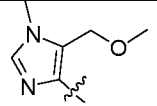
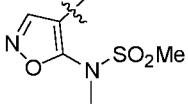
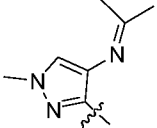
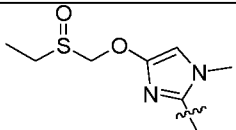
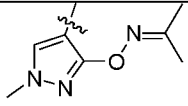
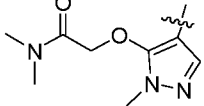
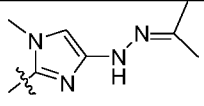
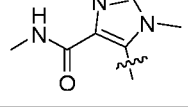
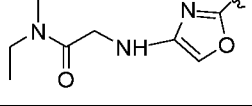
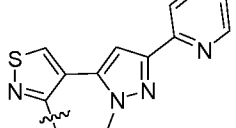
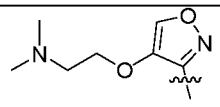
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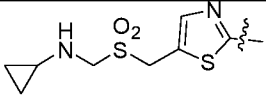
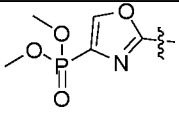
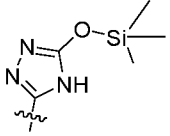
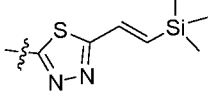
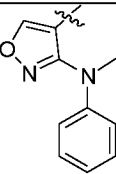
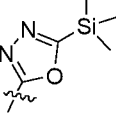
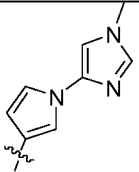
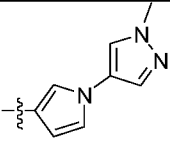
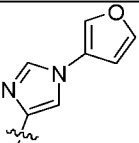
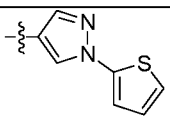
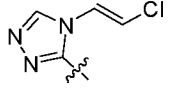
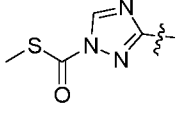
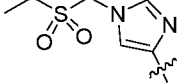
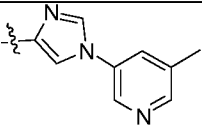
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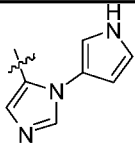
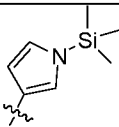
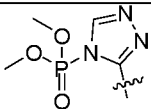
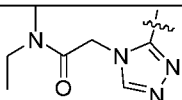
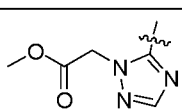
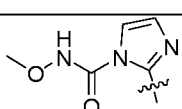
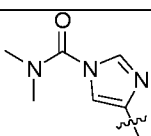
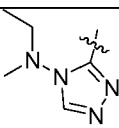
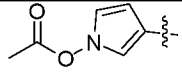
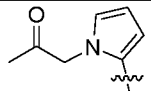
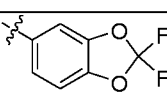
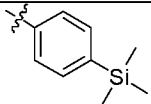
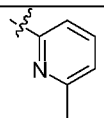
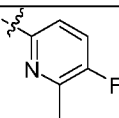
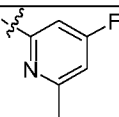
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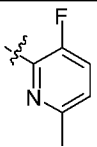
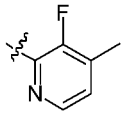
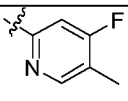
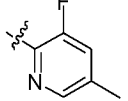
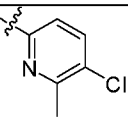
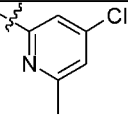
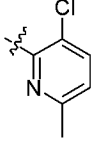
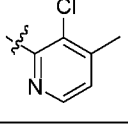
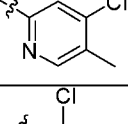
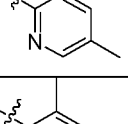
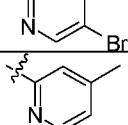
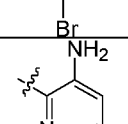
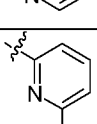
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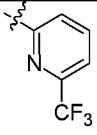
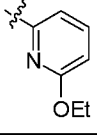
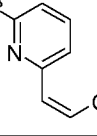
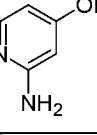
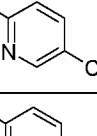
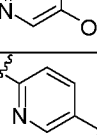
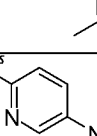
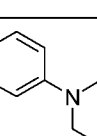
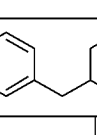
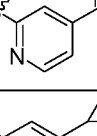
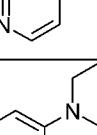
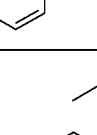
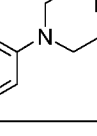
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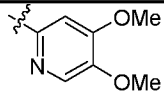
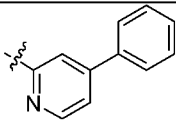
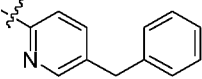
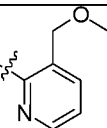
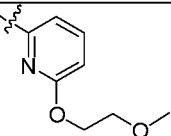
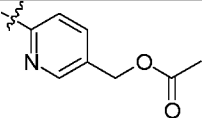
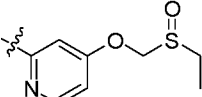
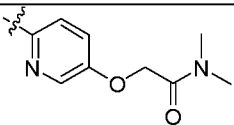
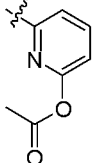
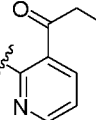
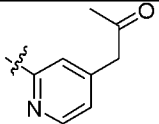
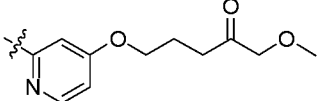
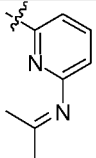
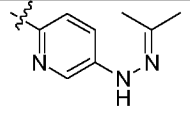
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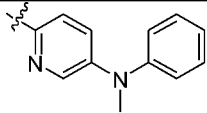
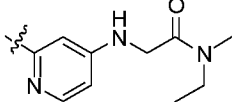
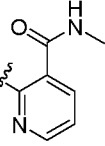
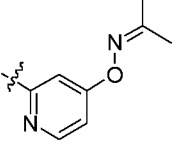
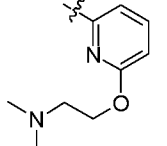
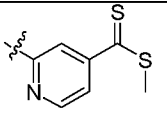
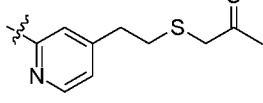
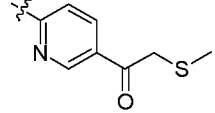
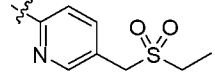
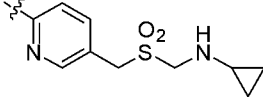
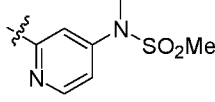
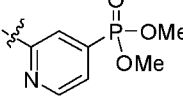
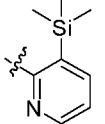
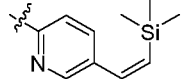
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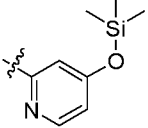
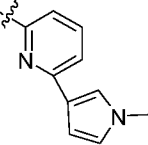
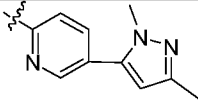
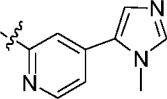
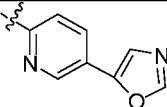
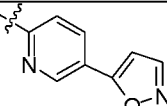
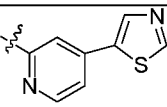
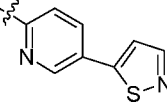
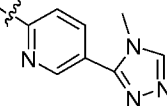
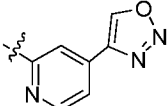
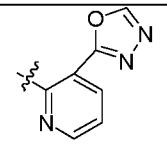
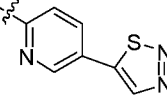
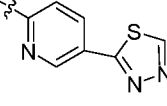
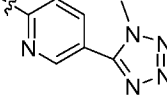
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1280	CF ₃		
1281	CF ₃		
1282	CF ₃		
1283	CF ₃		
1284	CF ₃		
1285	CF ₃		
1286	CF ₃		¹ H NMR (500 MHz, Chloroform-d) 7.25 (d, J = 2.0 Hz, 1H), 7.19 (dd, J = 7.5, 2.0 Hz, 1H), 7.06 - 6.91 (m, 2H), 5.52 (s, 1H).
1287	CF ₃		¹ H NMR (500 MHz, Chloroform-d) 7.83 (d, J = 7.5 Hz, 2H), 7.59 (d, J = 7.5 Hz, 2H), 7.10 (s, 1H), 5.88 (s, 1H), 0.25 (s, 9H).
1288	CF ₃		
1289	CF ₃		
1290	CF ₃		

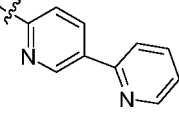
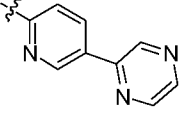
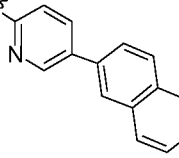
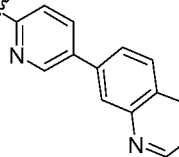
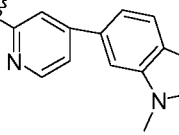
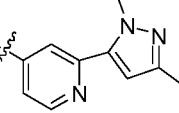
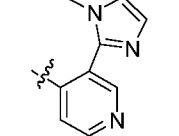
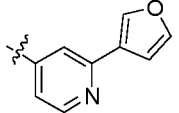
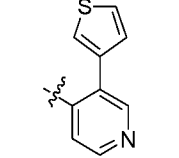
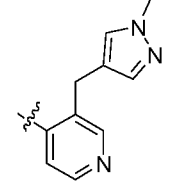
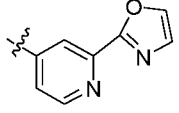
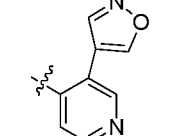
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1298	CF ₃		
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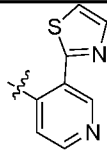
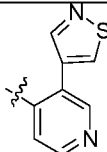
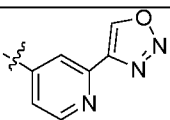
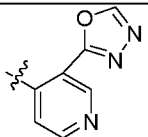
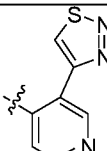
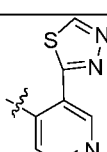
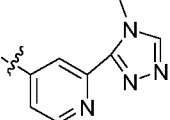
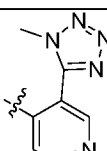
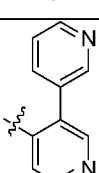
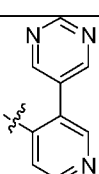
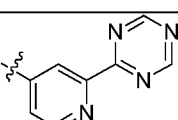
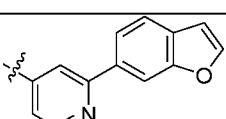
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1306	CF ₃	 <chem>CCOC1=CC=C(C(F)(F)F)N=C1</chem>	
1307	CF ₃	 <chem>ClC=C1C=CC(=C)N=C1C(F)(F)F</chem>	
1308	CF ₃	 <chem>COC1=CC=C(N)N=C1C(F)(F)F</chem>	
1309	CF ₃	 <chem>N#CC1=CC=C(C(F)(F)F)N=C1</chem>	
1310	CF ₃	 <chem>CCOC1=CC=C(C(F)(F)F)N=C1</chem>	
1311	CF ₃	 <chem>C=CC1=CC=C(C(F)(F)F)N=C1</chem>	
1312	CF ₃	 <chem>[N-]=[N+]=[N]C1=CC=C(C(F)(F)F)N=C1</chem>	
1313	CF ₃	 <chem>C1CCN(C1)c2cc(C(F)(F)F)nn2</chem>	
1314	CF ₃	 <chem>C1CCCCC1Cc2cc(C(F)(F)F)nn2</chem>	
1315	CF ₃	 <chem>C#CC1=CC=C(C(F)(F)F)N=C1</chem>	
1316	CF ₃	 <chem>C1CC1c2cc(C(F)(F)F)nn2</chem>	
1317	CF ₃	 <chem>C1CCN(C1)c2cc(C(F)(F)F)ncn2</chem>	
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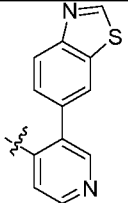
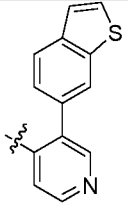
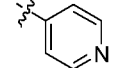
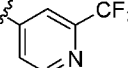
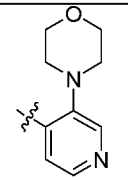
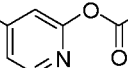
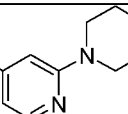
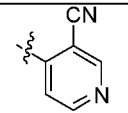
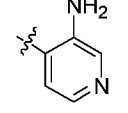
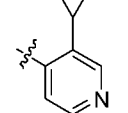
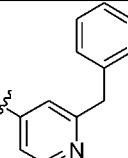
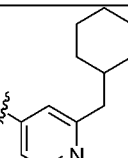
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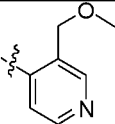
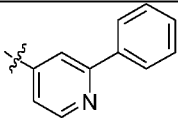
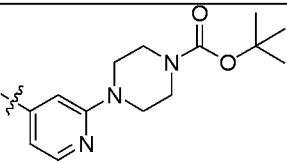
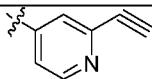
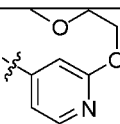
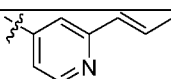
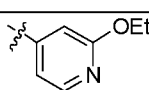
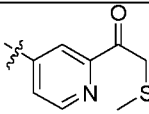
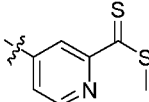
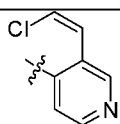
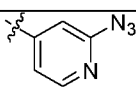
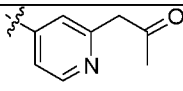
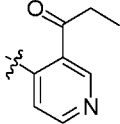
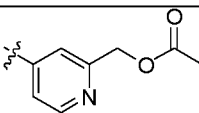
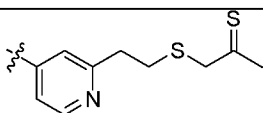
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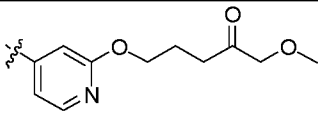
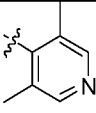
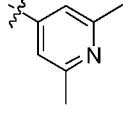
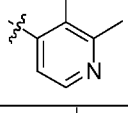
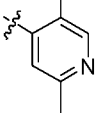
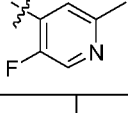
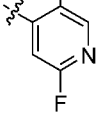
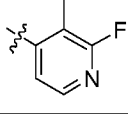
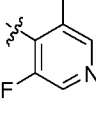
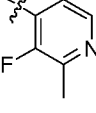
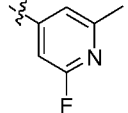
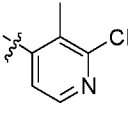
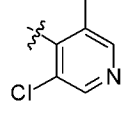
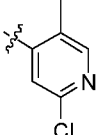
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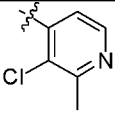
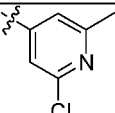
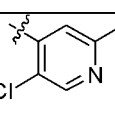
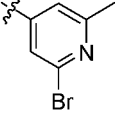
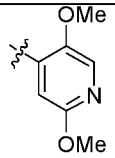
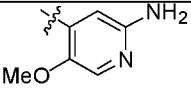
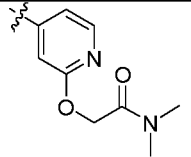
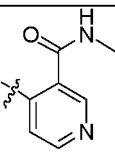
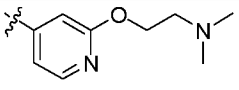
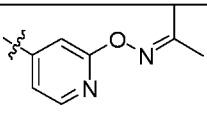
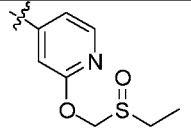
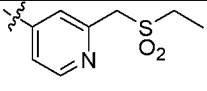
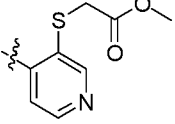
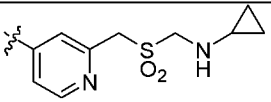
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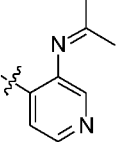
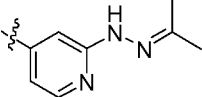
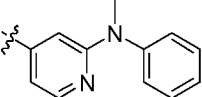
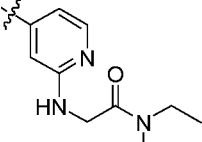
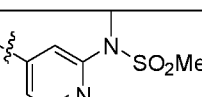
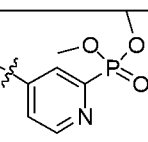
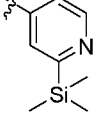
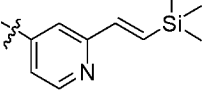
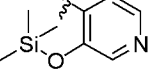
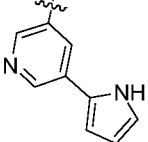
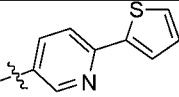
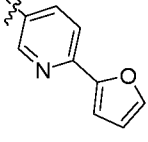
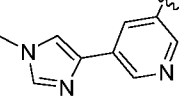
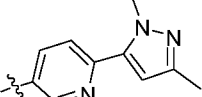
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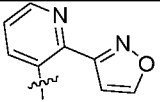
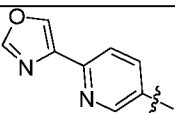
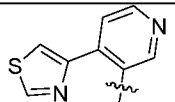
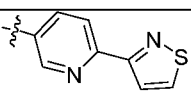
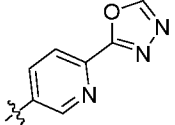
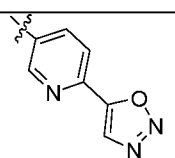
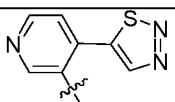
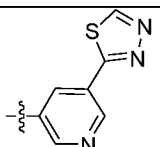
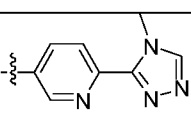
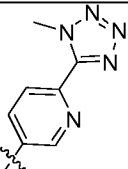
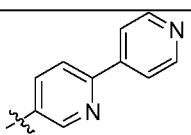
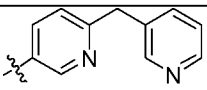
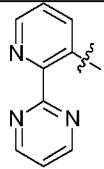
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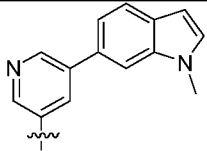
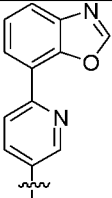
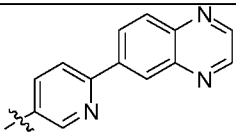
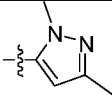
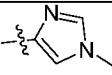
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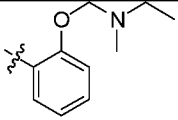
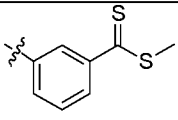
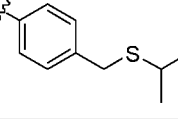
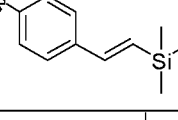
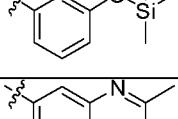
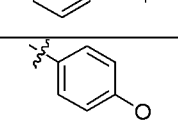
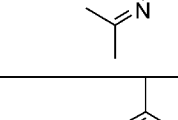
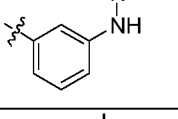
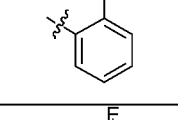
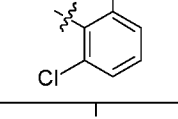
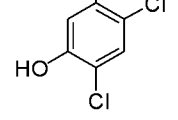
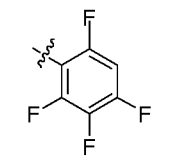
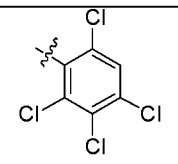
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1427	CF ₃		
1428	CF ₃		
1429	CF ₃		
1430	CF ₃		
1431	CF ₃		
1432	CF ₃		
1433	CF ₃		
1434	CF ₃		
1435	CF ₃		
1436	CF ₃		
1437	CF ₃		
1438	CF ₃		
1439	CF ₃		

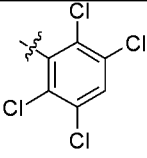
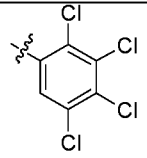
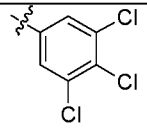
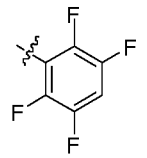
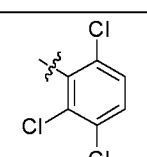
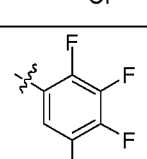
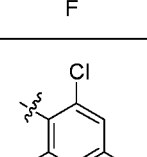
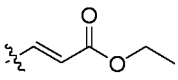
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1441	CF ₃		
1442	CF ₃		
1443	CF ₃		
1444	CF ₃		
1445	CF ₃		
1446	CF ₃		
1447	CF ₃		
1448	CF ₃		
1449	CF ₃		
1450	CF ₃		
1451	CF ₃		
1452	CF ₃		
1453	CF ₃		

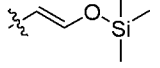
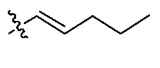
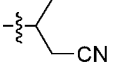
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1455	CF ₃		
1456	CF ₃		
1457	CF ₃		
1458	CF ₃		
1459	CF ₃		
1460	CF ₃		
1461	CF ₃		
1462	CF ₃		
1463	CF ₃		
1464	CF ₃		
1465	CF ₃		
1466	CF ₃		

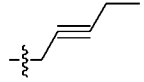
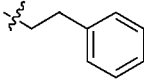
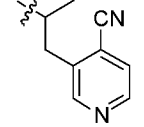
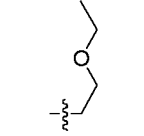
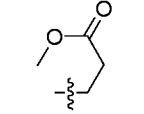
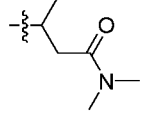
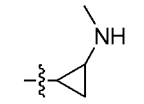
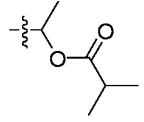
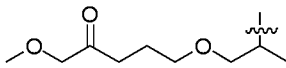
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1468	CF₃		
1469	CF₃		
1470	CF₂CF₃		
1471	CH₂F		
1472	CHF₂		
1473	CF₂CF₃		
1474	CH₂F		
1475	CHF₂		
1476	CF₂CF₃		
1477	CH₂F		
1478	OCHF₂		
1479	CF₂CF₃		
1480	CF₂CF₃		
1481	CF₂CF₃		
1482	CF₂CF₃		
1483	Ph		
1484	CF₂CF₃		

1485	CF ₂ CF ₃		
1486	CF ₂ CF ₃		
1487	CN		
1488	CF ₂ CF ₃		
1489	CF ₂ CF ₃		
1490	CF ₂ CF ₃		
1491	CF ₂ CF ₃		
1492	CF ₂ CF ₃		
1493	CF ₃		¹ H NMR (500 MHz, Chloroform-d) 7.16 (s, 1H), 5.85 (s, 1H), 4.27 (s, 3H).
1494	CF ₃		
1495	CF ₃		
1496	CF ₃		
1497	CF ₃		
1498	CF ₃		
1499	CF ₃		
1500	CF ₃		
1501	OCF ₃		

1502	CF ₃		
1503	CF ₃		
1504	CF ₃		
1505	CF ₃		
1506	CF ₃		
1507	CONH ₂		
1508	CF ₃		
1509	CF ₃		
1510	CF ₃		
1511	CF ₃		
1512	CF ₃		¹ H NMR (500 MHz, Chloroform-d) 7.34 (s, 1H), 7.08 (s, 1H), 7.04 (s, 1H), 5.78 (s, 1H), 5.53 (s, 1H).
1513	Ph		
1514	CF ₃		

1515	CF ₃		
1516	NH ₂		
1517	CF ₃		
1518	CF ₃		
1519	CF ₃		
1520	CF ₃		
1521	CF ₃		
1522	CF ₃		¹ H NMR (500 MHz, Chloroform- <i>d</i>) δ 7.74 (d, <i>J</i> = 15.0 Hz, 1H), 7.00 (s, 1H), 6.50 (d, <i>J</i> = 15.0 Hz, 1H), 5.87 (s, 1H), 4.24 (q, <i>J</i> = 8.0 Hz, 2H), 1.31 (t, <i>J</i> = 8.0 Hz, 3H).
1523	CF ₃		¹ H NMR (500 MHz, Chloroform- <i>d</i>) δ 6.99 (s, 1H), 6.25 (s, 1H), 5.87 (s, 1H), 1.78 (s, 6H).
1524	CF ₃		¹ H NMR (500 MHz, Chloroform- <i>d</i>) δ 7.07 (s, 1H), 6.07 – 5.96 (m, 1H), 5.87 (s, 1H), 2.03 – 1.93 (m, 4H), 1.66 – 1.56 (m, 4H).
1525	CF ₃	Me	(500 MHz, Chloroform- <i>d</i>) δ 6.96 (s, 1H), 5.87 (s, 1H), 2.10 (s, 3H).

1526	CF ₃		
1527	OH		
1528	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 6.95 (s, 1H), 6.38 – 6.31 (m, 1H), 5.87 (s, 1H), 2.35 – 2.24 (m, 4H), 1.82 – 1.70 (m, 2H).
1529	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 6.99 (s, 1H), 5.87 (s, 1H), 5.65 – 5.42 (m, 1H), 4.31 – 4.22 (m, 2H), 2.62 – 2.54 (m, 2H).
1530	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.03 (s, 1H), 6.22 (d, <i>J</i> = 15.0 Hz, 1H), 5.93 – 5.85 (m, 2H), 0.08 (s, 9H).
1531	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.09 (s, 1H), 5.87 (s, 1H), 5.81 – 5.74 (m, 1H), 4.20 – 4.04 (m, 2H), 3.79 – 3.66 (m, 2H), 2.13 – 2.01 (m, 2H).
1532	CF ₃		(500 MHz, Chloroform- <i>d</i>) δ 7.03 (s, 1H), 6.40 – 6.26 (m, 2H), 5.87 (s, 1H), 2.07 – 1.97 (m, 2H), 1.46 – 1.32 (m, 2H), 0.95 (t, <i>J</i> = 8.0 Hz, 3H).
1533	CF ₃	Et	(500 MHz, Chloroform- <i>d</i>) δ 6.96 (s, 1H), 5.87 (s, 1H), 2.41 (q, <i>J</i> = 8.0 Hz, 2H), 1.16 (t, <i>J</i> = 8.0 Hz, 3H).
1534	OCF ₃		
1535	CF ₃		

1536	CN		
1537	CF ₃		
1538	CF ₃		
1539	CF ₃		
1540	CF ₃		
1541	CF ₃		
1542	CF ₃		
1543	CF ₂ CF ₃		
1544	CF ₃		
1545	CF ₃		

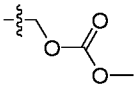
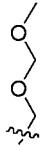
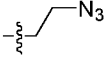
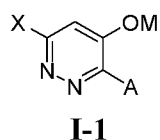
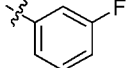
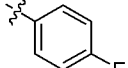
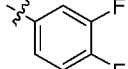
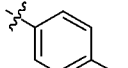
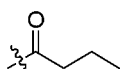
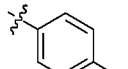
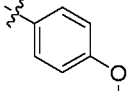
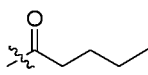
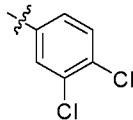
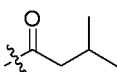
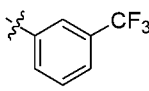
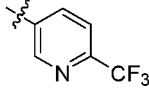
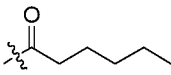
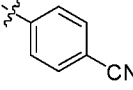
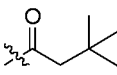
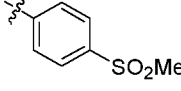
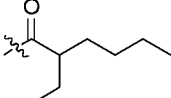
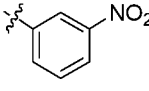
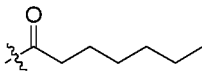
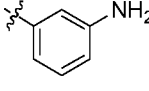
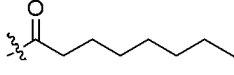
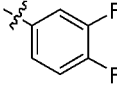
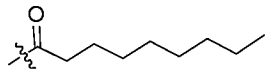
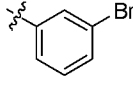
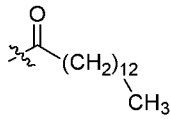
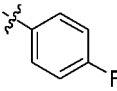
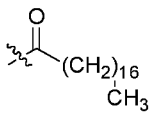
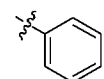
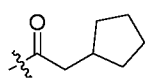
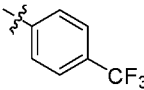
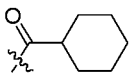
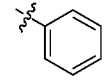
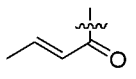
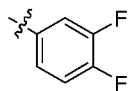
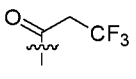
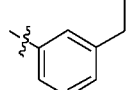
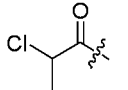
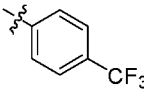
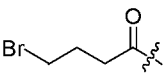
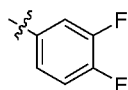
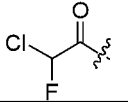
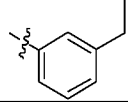
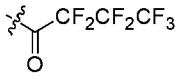
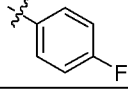
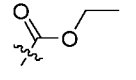
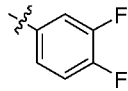
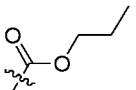
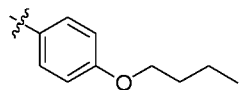
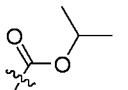
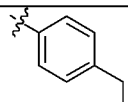
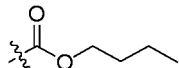
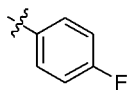
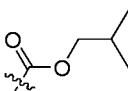
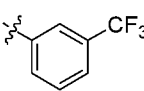
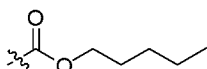
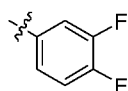
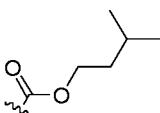
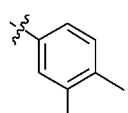
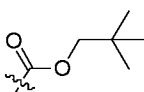
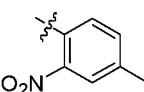
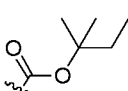
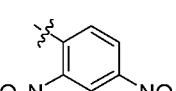
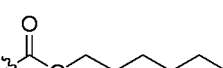
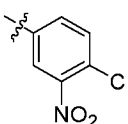
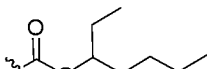
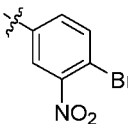
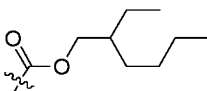
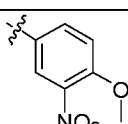
1546	CF ₃		
1547	CHF ₂		
1548	CF ₃		
1549	CF ₃		

表 2 衍生化合物 I-1 结构及其 ¹HNMR 数据

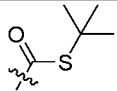
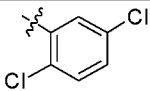
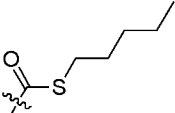
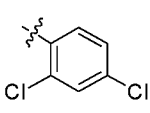
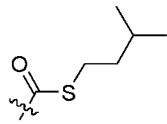
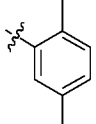
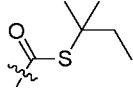
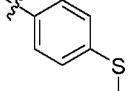
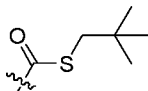
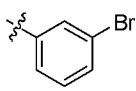
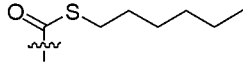
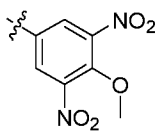
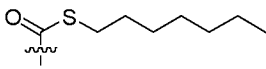
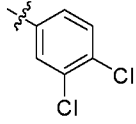
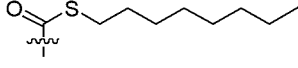
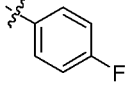
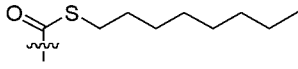
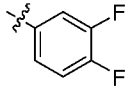
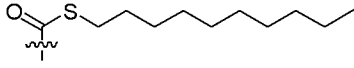
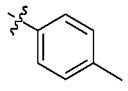
序号	X	M	A	¹ HNMR
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1-2	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 – 7.39 (m, 2H), 7.18 (s, 1H), 7.11 – 7.03 (m, 2H), 2.47 (s, 3H).
1-3	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.45 – 7.33 (m, 2H), 7.20 – 7.11 (m, 2H), 2.27 (q, <i>J</i> = 8.0 Hz, 1H), 1.12 (t, <i>J</i> = 8.0 Hz, 2H).
1-4	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.45 – 7.37 (m, 2H), 7.18 (s, 1H), 7.11 – 7.03 (m, 2H), 2.27 (q, <i>J</i> = 8.0 Hz, 2H), 1.03 (t, <i>J</i> = 8.0 Hz, 3H).
1-5	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.37 – 7.31 (m, 2H), 7.17 (s, 1H), 6.84 – 6.78 (m, 2H), 2.78 (t, <i>J</i> = 8.0 Hz, 2H), 2.27 (s, 3H), 1.73 – 1.62 (m, 2H), 1.38 (t, <i>J</i> = 8.0 Hz, 3H).
1-6	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.43 – 7.36 (m, 2H), 7.17 (s, 1H), 6.80 – 6.74 (m, 2H), 3.80 (s, 3H), 2.70 (hept, <i>J</i> = 6.5 Hz, 1H), 1.17 (d, <i>J</i> = 6.5 Hz, 6H).

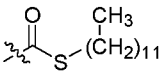
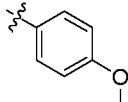
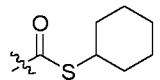
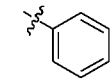
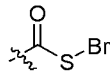
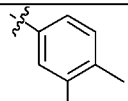
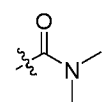
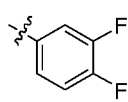
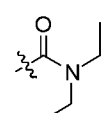
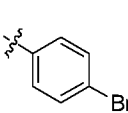
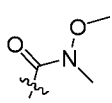
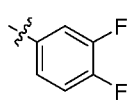
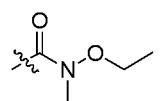
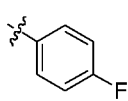
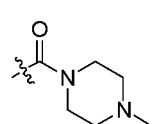
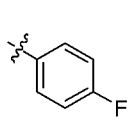
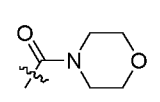
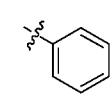
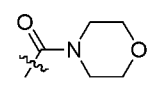
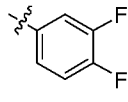
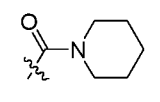
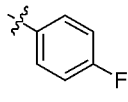
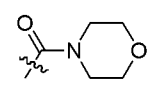
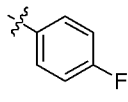
1-7	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.63 (d, J = 2.0 Hz, 1H), 7.31 (dd, J = 7.5, 2.0 Hz, 1H), 7.26 (d, J = 7.5 Hz, 1H), 7.18 (s, 1H), 2.33 (t, J = 8.0 Hz, 2H), 1.53 – 1.41 (m, 4H), 0.92 (t, J = 8.0 Hz, 3H).
1-8	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.98 – 7.89 (m, 2H), 7.75 – 7.63 (m, 2H), 7.19 (s, 1H), 4.08 (d, J = 7.0 Hz, 2H), 2.19 – 2.02 (m, 1H), 0.97 (d, J = 7.0 Hz, 6H).
1-9	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 9.13 (d, J = 1.5 Hz, 1H), 8.09 (dd, J = 8.0, 1.5 Hz, 1H), 7.41 (d, J = 7.0 Hz, 2H), 1.16 (s, 9H).
1-10	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.92 (d, J = 7.5 Hz, 2H), 7.70 (d, J = 7.5 Hz, 2H), 7.18 (s, 1H), 2.33 (t, J = 8.0 Hz, 2H), 1.50 – 1.23 (m, 6H), 0.92 (t, J = 8.0 Hz, 3H).
1-11	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.96 – 7.90 (m, 2H), 7.90 – 7.84 (m, 2H), 7.26 (s, 1H), 3.30 (s, 3H), 2.09 (s, 2H), 0.93 (s, 9H).
1-12	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.41 – 8.21 (m, 2H), 7.91 – 7.60 (m, 2H), 7.19 (s, 1H), 2.14 – 1.77 (m, 3H), 1.75 – 1.53 (m, 2H), 1.45 – 1.24 (m, 4H), 0.90 (t, J = 7.5 Hz, 3H), 0.79 (t, J = 8.0 Hz, 3H).
1-13	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.18 – 7.08 (m, 2H), 6.93 – 6.68 (m, 2H), 6.62 – 6.47 (m, 1H), 4.13 (s, 2H), 2.33 (t, J = 6.0 Hz, 2H), 1.51 – 1.22 (m, 8H), 0.93 (t, J = 8.0 Hz, 3H).
1-14	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.41 – 7.19 (m, 2H), 7.23 – 7.10 (m, 2H), 2.33 (t, J = 8.0 Hz, 2H), 1.51 – 1.36 (m, 2H), 1.34 – 1.22 (m, 8H), 0.94 (t, J = 8.0 Hz, 3H).
1-15	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.62 – 7.52 (m, 2H), 7.46 – 7.29 (m, 2H), 7.14 (s, 1H), 2.33 (t, J = 8.0 Hz, 2H), 1.51 – 1.22 (m, 12H), 0.93 (t, J = 8.0 Hz, 3H).
1-16	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 – 7.39 (m, 2H), 7.11 – 7.03 (m, 2H), 2.33 (t, J = 7.5 Hz, 2H), 1.51 – 1.22 (m, 22H), 0.89 (t, J = 8.0 Hz, 3H).

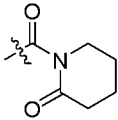
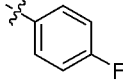
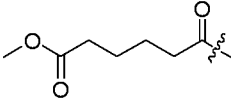
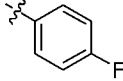
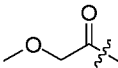
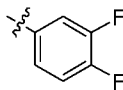
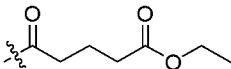
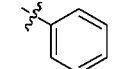
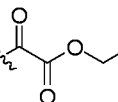
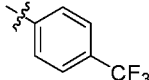
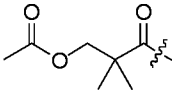
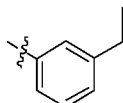
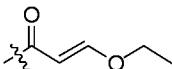
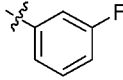
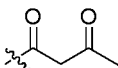
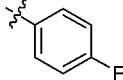
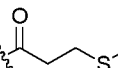
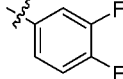
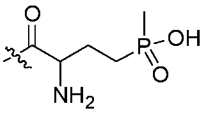
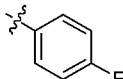
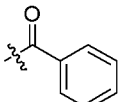
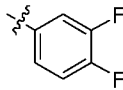
1-17	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.59 – 7.52 (m, 2H), 7.41 – 7.31 (m, 3H), 2.33 (t, <i>J</i> = 7.5 Hz, 2H), 1.51 – 1.22 (m, 30H), 0.87 (t, <i>J</i> = 8.0 Hz, 3H).
1-18	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.70 (d, <i>J</i> = 7.5 Hz, 2H), 7.43 (d, <i>J</i> = 7.5 Hz, 2H), 7.13 (s, 1H), 4.08 (d, <i>J</i> = 7.0 Hz, 2H), 1.71 – 1.52 (m, 7H), 1.28 – 1.17 (m, 2H).
1-19	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.53 – 7.45 (m, 2H), 7.46 – 7.37 (m, 3H), 7.18 (s, 1H), 2.37 – 2.29 (m, 1H), 2.25 – 2.14 (m, 2H), 1.82 – 1.63 (m, 5H), 1.53 – 1.40 (m, 3H).
1-20	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 – 7.27 (m, 2H), 7.22 – 7.14 (m, 1H), 7.17 – 7.00 (m, 2H), 5.54 – 5.42 (m, 1H), 1.87 – 1.72 (m, 3H).
1-21	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.39 – 7.32 (m, 2H), 7.32 – 7.26 (m, 2H), 7.14 (s, 1H), 2.75 (q, <i>J</i> = 8.0 Hz, 2H), 2.71 – 2.61 (m, 2H), 1.21 (t, <i>J</i> = 8.0 Hz, 3H).
1-22	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.72 – 7.67 (m, 2H), 7.59 – 7.52 (m, 2H), 7.17 (s, 1H), 4.49 (q, <i>J</i> = 6.5 Hz, 1H), 1.72 (d, <i>J</i> = 6.5 Hz, 3H).
1-23	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.44 – 7.30 (m, 2H), 7.25 – 7.17 (m, 2H), 3.28 (t, <i>J</i> = 7.0 Hz, 2H), 2.33 (t, <i>J</i> = 7.5 Hz, 2H), 2.06 – 1.98 (m, 2H).
1-24	CF ₃			
1-25	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.48 – 7.40 (m, 2H), 7.24 (s, 1H), 7.11 – 7.03 (m, 2H).
1-26	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.43 – 7.22 (m, 2H), 7.20 – 7.11 (m, 2H), 4.25 (q, <i>J</i> = 8.0 Hz, 2H), 1.26 (t, <i>J</i> = 8.0 Hz, 3H).
1-27	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.51 – 7.45 (m, 2H), 7.09 – 7.03 (m, 2H), 4.23 (t, <i>J</i> = 7.5 Hz, 2H), 4.00 (t, <i>J</i> = 7.5 Hz, 2H), 1.87 – 1.50 (m, 6H), 1.02 (t, <i>J</i> = 8.0 Hz, 3H), 0.92 (t, <i>J</i> = 8.0 Hz, 3H).
1-28	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.50 (d, <i>J</i> = 7.5 Hz, 2H), 7.21 (s, 1H), 7.10 (d, <i>J</i> = 7.5 Hz,

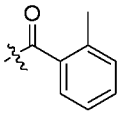
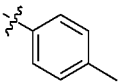
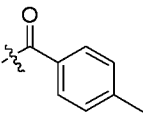
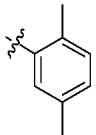
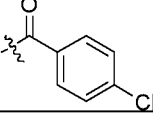
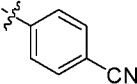
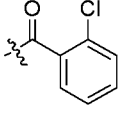
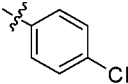
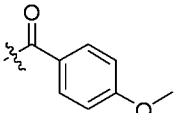
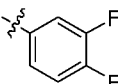
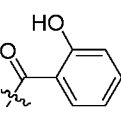
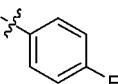
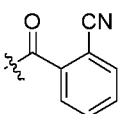
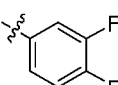
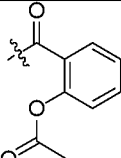
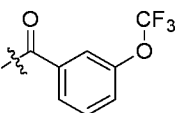
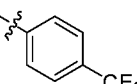
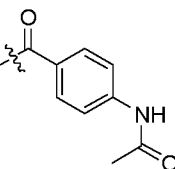
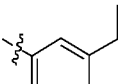
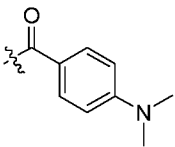
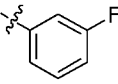
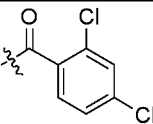
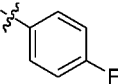
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1-29	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.48 – 7.40 (m, 2H), 7.21 (s, 1H), 7.11 – 7.03 (m, 2H), 4.23 (t, $J = 7.5$ Hz, 2H), 1.60 – 1.40 (m, 4H), 0.98 (t, $J = 8.0$ Hz, 3H).
1-30	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.99 – 7.90 (m, 2H), 7.75 – 7.69 – 7.61 (m, 2H), 7.22 (s, 1H), 4.05 (d, $J = 7.0$ Hz, 2H), 1.95 – 1.80 (m, 1H), 0.95 (d, $J = 6.5$ Hz, 6H).
1-31	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.43 – 7.22 (m, 2H), 7.21 – 7.11 (m, 2H), 4.23 (t, $J = 7.5$ Hz, 2H), 1.79 – 1.39 (m, 6H), 0.95 (t, $J = 8.0$ Hz, 3H).
1-32	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.36 – 7.28 (m, 2H), 7.20 (s, 1H), 7.13 (dd, $J = 7.5, 1.0$ Hz, 1H), 4.23 (t, $J = 7.5$ Hz, 2H), 2.30 (s, 3H), 2.20 (s, 3H), 1.78 – 1.52 (m, 3H), 0.97 (d, $J = 7.0$ Hz, 6H).
1-33	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.96 (d, $J = 2.5$ Hz, 1H), 7.83 (dd, $J = 7.5, 2.5$ Hz, 1H), 7.48 (d, $J = 7.5$ Hz, 1H), 7.22 (s, 1H), 4.02 (s, 2H), 2.50 (s, 3H), 0.95 (s, 9H).
1-34	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.77 (d, $J = 2.0$ Hz, 1H), 8.57 (dd, $J = 7.5, 2.0$ Hz, 1H), 8.25 (d, $J = 7.5$ Hz, 1H), 7.24 (s, 1H), 1.61 (s, 6H), 1.49 (q, $J = 8.0$ Hz, 2H), 0.90 (t, $J = 8.0$ Hz, 3H).
1-35	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.05 (d, $J = 2.0$ Hz, 1H), 7.80 – 7.70 (m, 2H), 7.22 (s, 1H), 4.23 (t, $J = 7.5$ Hz, 2H), 1.72 – 1.31 (m, 8H), 0.93 (t, $J = 7.5$ Hz, 3H).
1-36	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.08 (d, $J = 2.0$ Hz, 1H), 7.93 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.82 (d, $J = 7.5$ Hz, 1H), 7.20 (s, 1H), 4.79 – 4.53 (m, 1H), 2.06 – 1.88 (m, 2H), 1.71 – 1.57 (m, 4H), 1.30 – 1.19 (m, 2H), 0.89 (t, $J = 8.0$ Hz, 3H), 0.78 (t, $J = 8.0$ Hz, 3H).
1-37	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.04 (d, $J = 2.0$ Hz, 1H), 7.82 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.20 (s, 1H), 7.15 (d, $J = 7.5$ Hz,

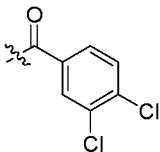
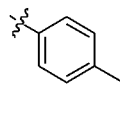
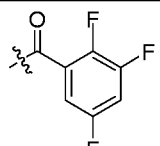
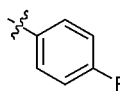
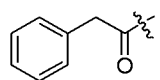
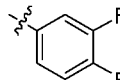
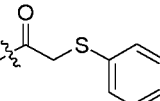
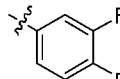
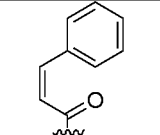
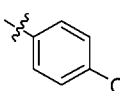
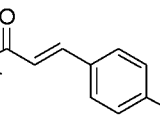
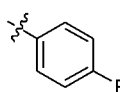
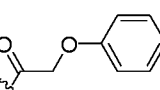
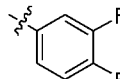
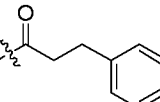
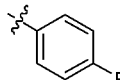
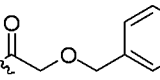
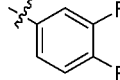
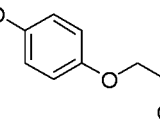
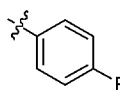
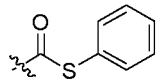
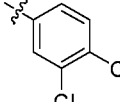
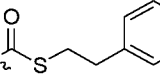
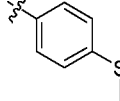
				1H), 4.27 – 4.19 (m, 2H), 4.04 (s, 3H), 1.85 – 1.75 (m, 2H), 1.79 – 1.71 (m, 1H), 1.65 – 1.51 (m, 2H), 1.40 – 1.20 (m, 2H), 1.18 – 1.05 (m, 2H), 0.89 (t, $J = 8.0$ Hz, 3H), 0.83 (t, $J = 8.0$ Hz, 3H).
1-38	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.38 (d, $J = 7.5$ Hz, 1H), 7.23 – 7.16 (m, 2H), 4.23 (t, $J = 7.5$ Hz, 2H), 1.72 – 1.61 (m, 2H), 1.47 – 1.28 (m, 8H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-39	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.41 – 7.34 (m, 2H), 7.21 – 7.03 (m, 3H), 4.23 (t, $J = 7.5$ Hz, 2H), 1.72 – 1.35 (m, 12H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-40	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.69 (d, $J = 7.5$ Hz, 2H), 7.57 – 7.31 (d, $J = 7.5$ Hz, 2H), 7.10 (s, 1H), 4.23 (t, $J = 7.5$ Hz, 1H), 1.72 – 1.35 (m, 12H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-41	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.49 (d, $J = 7.5$ Hz, 2H), 7.09 (d, $J = 7.5$ Hz, 2H), 7.02 (s, 1H), 4.23 (t, $J = 7.5$ Hz, 1H), 4.00 (t, $J = 7.5$ Hz, 1H), 1.73 – 1.49 (m, 4H), 1.35 – 1.04 (m, 16H), 0.93 – 0.85 (m, 6H).
1-42	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 – 7.35 (m, 2H), 7.23 – 7.11 (m, 2H), 2.91 (q, $J = 7.0$ Hz, 2H), 1.26 (t, $J = 7.0$ Hz, 3H).
1-43	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.48 – 7.40 (m, 2H), 7.21 (s, 1H), 7.11 – 7.03 (m, 2H), 2.85 (t, $J = 8.0$ Hz, 2H), 1.66 – 1.50 (m, 2H), 0.90 (t, $J = 8.0$ Hz, 3H).
1-44	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.57 – 7.51 (m, 2H), 7.38 – 7.30 (m, 3H), 7.17 – 7.08 (m, 3H), 7.02 – 6.96 (m, 2H), 3.29 (hept, $J = 6.5$ Hz, 1H), 1.46 (d, $J = 6.5$ Hz, 6H).
1-45	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.49 (d, $J = 7.5$ Hz, 2H), 7.38 (d, $J = 7.5$ Hz, 2H), 7.33 (s, 1H), 2.85 (t, $J = 8.0$ Hz, 2H), 2.55 – 2.42 (m, 1H), 2.15 – 2.07 (m, 2H), 1.82 – 1.70 (m, 6H), 1.43 – 1.38 (m, 4H), 1.37 – 1.26 (m, 2H), 0.87 (t, $J = 8.0$ Hz, 3H).
1-46	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.31 (s, 1H), 7.13 – 6.97 (m,

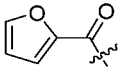
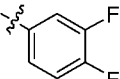
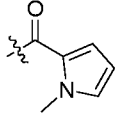
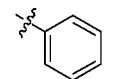
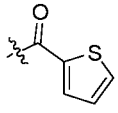
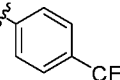
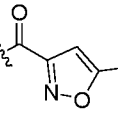
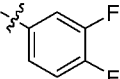
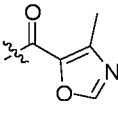
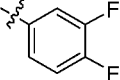
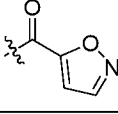
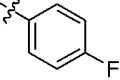
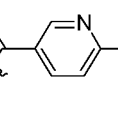
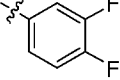
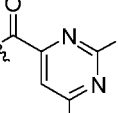
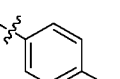
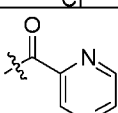
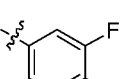
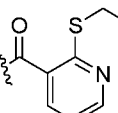
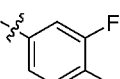
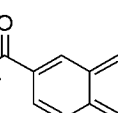
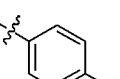
				2H), 6.76 – 6.67 (m, 2H), 4.13 (s, 2H), 3.26 – 3.18 (m, 1H), 1.73 – 1.60 (m, 2H), 1.36 (d, $J = 6.5$ Hz, 3H), 0.90 (t, $J = 8.0$ Hz, 3H).
1-47	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.52 – 7.43 (m, 3H), 7.29 (s, 1H), 1.26 (s, 9H).
1-48	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.52 (d, $J = 2.0$ Hz, 1H), 7.45 (d, $J = 7.5$ Hz, 1H), 7.35 – 7.27 (m, 2H), 2.85 (t, $J = 7.5$ Hz, 2H), 1.56 – 1.23 (m, 6H), 0.94 (t, $J = 8.0$ Hz, 3H).
1-49	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.42 – 7.37 (m, 1H), 7.23 – 7.14 (m, 3H), 2.85 (t, $J = 8.0$ Hz, 2H), 2.50 (s, 3H), 2.40 (s, 3H), 1.68 – 1.47 (m, 3H), 0.88 (d, $J = 6.5$ Hz, 6H).
1-50	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.55 (d, $J = 7.5$ Hz, 2H), 7.41 (d, $J = 7.5$ Hz, 2H), 7.17 (s, 1H), 2.45 (s, 3H), 1.88 (q, $J = 8.0$ Hz, 1H), 1.24 (s, 6H), 0.85 (t, $J = 8.0$ Hz, 3H).
1-51	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.81 – 7.61 (m, 1H), 7.49 – 7.28 (m, 2H), 7.22 (s, 1H), 2.73 (s, 2H), 0.95 (s, 9H).
1-52	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.41 (s, 2H), 7.23 (s, 1H), 3.97 (s, 3H), 2.85 (t, $J = 8.0$ Hz, 2H), 1.94 – 1.78 (m, 2H), 1.37 – 1.24 (m, 6H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-53	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.67 (d, $J = 2.0$ Hz, 1H), 7.34 – 7.23 (m, 2H), 7.21 (s, 1H), 2.85 (t, $J = 8.0$ Hz, 2H), 1.94 – 1.80 (m, 2H), 1.38 – 1.22 (m, 8H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-54	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.48 – 7.32 (m, 2H), 7.11 – 6.93 (m, 3H), 2.85 (t, $J = 8.0$ Hz, 2H), 1.94 – 1.81 (m, 2H), 1.37 – 1.20 (m, 10H), 0.94 (t, $J = 8.0$ Hz, 3H).
1-55	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.26 (s, 1H), 7.21 – 7.11 (m, 3H), 2.85 (t, $J = 8.0$ Hz, 2H), 1.94 – 1.81 (m, 2H), 1.38 – 1.20 (m, 10H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-56	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 (d, $J = 7.5$ Hz, 2H), 7.23 (d, $J = 7.5$ Hz, 2H), 2.85 (t, $J = 8.0$ Hz, 2H), 2.33 (s, 3H), 1.94 – 1.81 (m, 2H), 1.38 –

				1.20 (m, 14H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-57	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.61 (d, $J = 7.5$ Hz, 2H), 7.41 (d, $J = 7.5$ Hz, 2H), 7.11 (s, 1H), 3.11 (s, 3H), 2.85 (t, $J = 8.0$ Hz, 1H), 1.94 – 1.81 (m, 2H), 1.47 – 1.20 (m, 18H), 0.92 (t, $J = 8.0$ Hz, 3H).
1-58	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.57 – 7.50 (m, 2H), 7.46 – 7.37 (m, 3H), 7.32 (s, 1H), 2.93 – 2.81 (m, 1H), 1.79 – 1.62 (m, 4H), 1.42 – 1.15 (m, 6H).
1-59	CF ₃			
1-60	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.37 – 7.21 (m, 2H), 7.18 (s, 1H), 7.13 – 7.01 (m, 1H), 3.14 (s, 3H), 3.04 (s, 3H).
1-61	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.60 (d, $J = 7.5$ Hz, 2H), 7.53 (d, $J = 7.5$ Hz, 2H), 7.15 (s, 1H), 3.48 (q, $J = 8.0$ Hz, 4H), 1.23 (t, $J = 8.0$ Hz, 6H).
1-62	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.33 – 7.21 (m, 1H), 7.17 – 7.04 (m, 2H), 3.58 (s, 3H), 3.44 (s, 3H).
1-63	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.42 – 7.34 (m, 2H), 7.16 (s, 1H), 7.11 – 7.03 (m, 2H), 3.57 (q, $J = 8.0$ Hz, 2H), 3.44 (s, 3H), 1.21 (t, $J = 8.0$ Hz, 3H).
1-64	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.46 – 7.38 (m, 2H), 7.17 (s, 1H), 7.11 – 7.03 (m, 2H), 3.47 – 3.30 (m, 4H), 3.19 – 3.04 (m, 4H), 2.32 (s, 3H).
1-65	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.53 – 7.45 (m, 2H), 7.41 – 7.22 (m, 3H), 7.16 (s, 1H), 3.64 – 3.49 (m, 4H), 3.47 – 3.32 (m, 4H).
1-66	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.38 – 7.24 (m, 1H), 7.23 – 7.13 (m, 3H), 3.84 – 3.66 (m, 4H), 3.47 – 3.33 (m, 4H).
1-67	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.44 – 7.37 (m, 2H), 7.17 (s, 1H), 7.11 – 7.03 (m, 2H), 3.90 – 3.77 (m, 4H), 1.79 – 1.65 (m, 6H).
1-68	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.57 – 7.43 (m, 2H), 7.46 – 7.37 (m, 2H), 7.32 (s, 1H), 3.84 – 3.66 (m, 4H), 3.47 –

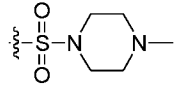
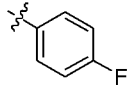
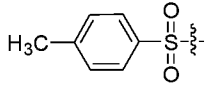
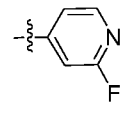
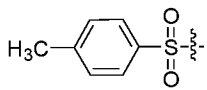
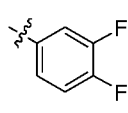
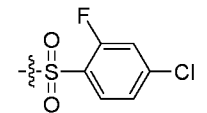
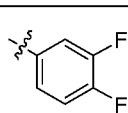
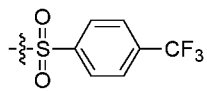
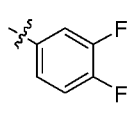
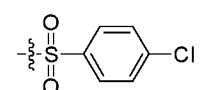
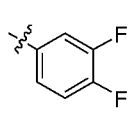
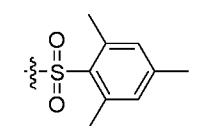
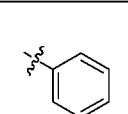
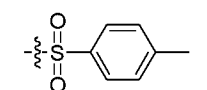
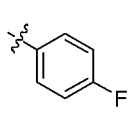
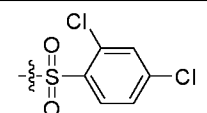
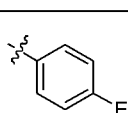
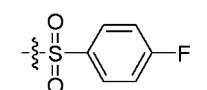
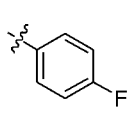
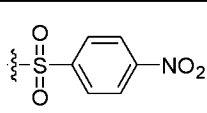
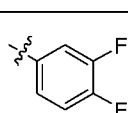
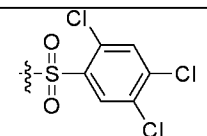
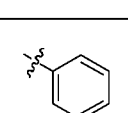
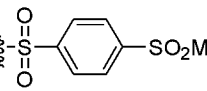
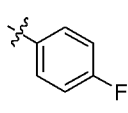
				3.33 (m, 4H)
1-69	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.52 – 7.44 (m, 2H), 7.18 (s, 1H), 7.11 – 7.03 (m, 2H), 3.46 – 3.23 (m, 2H), 2.16 v 2.02 (m, 2H), 1.92 – 1.77 (m, 4H).
1-70	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.51 – 7.44 (m, 2H), 7.27 (s, 1H), 7.11 – 7.03 (m, 2H), 3.64 (s, 3H), 2.34 – 2.22 (m, 4H), 1.77 – 1.67 (m, 2H), 1.65 – 1.55 (m, 2H).
1-71	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.43 – 7.28 (m, 2H), 7.23 – 7.16 (m, 1H), 7.14 (s, 1H), 4.31 (s, 2H), 3.30 (s, 3H).
1-72	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.57 – 7.41 (m, 2H), 4.07 (q, J = 8.0 Hz, 1H), 2.34 (t, J = 7.5 Hz, 2H), 2.05 (d, J = 8.0 Hz, 2H), 1.17 – 1.05 (m, 2H).
1-73	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.68 (d, J = 7.5 Hz, 2H), 7.57 (d, J = 7.5 Hz, 2H), 7.22 (s, 1H), 4.22 (q, J = 8.0 Hz, 2H), 1.31 (t, J = 8.0 Hz, 3H).
1-74	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.53 – 7.48 (m, 1H), 7.47 – 7.40 (m, 2H), 7.31 – 7.18 (m, 2H), 4.23 (s, 2H), 2.71 (d, J = 8.0 Hz, 2H), 2.02 (s, 3H), 1.21 (t, J = 8.0 Hz, 3H), 1.19 (s, 6H).
1-75	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.48 – 7.40 (m, 1H), 7.32 – 7.21 (m, 3H), 7.03 – 6.90 (m, 1H), 4.79 – 4.66 (m, 1H), 4.06 (q, J = 8.0 Hz, 2H), 1.21 (t, J = 8.0 Hz, 3H).
1-76	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.48 – 7.40 (m, 2H), 7.20 (s, 1H), 7.11 – 7.03 (m, 2H), 3.39 (s, 2H), 2.05 (s, 3H).
1-77	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.40 – 7.29 (2, 1H), 7.23 – 7.10 (m, 2H), 2.71 (t, J = 8.0 Hz, 2H), 2.60 (t, J = 8.0 Hz, 2H), 2.14 (s, 3H).
1-78	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.42 – 7.34 (m, 2H), 7.16 (s, 1H), 7.11 – 7.03 (m, 2H), 3.46 – 3.30 (m, 2H), 2.73 – 2.66 (m, 2H), 2.19 – 2.09 (m, 1H), 1.79 (s, 2H), 1.26 (s, 3H).
1-79	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.16 – 8.09 (m, 2H), 7.67 – 7.55 (m, 3H), 7.37 – 7.18 (m, 2H), 7.14 – 7.00 (m, 3H).

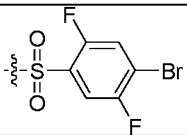
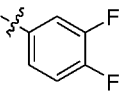
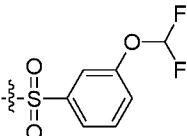
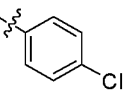
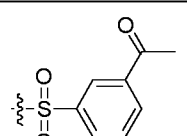
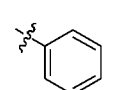
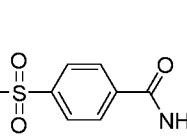
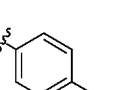
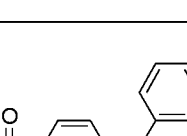
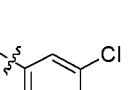
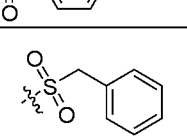
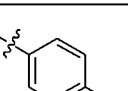
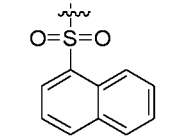
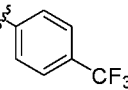
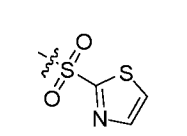
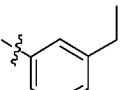
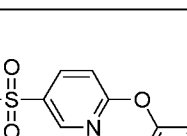
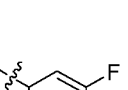
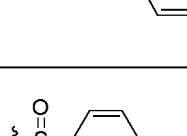
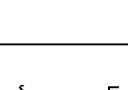
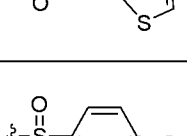
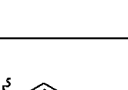
1-80	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.49 – 7.35 (m, 4H), 7.36 – 7.26 (m, 2H), 7.26 – 7.18 (m, 3H), 2.52 (s, 3H), 2.33 (s, 3H).
1-81	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.05 – 7.99 (m, 2H), 7.51 – 7.41 (m, 3H), 7.24 (s, 1H), 7.21 – 7.13 (m, 2H), 2.50 (s, 3H), 2.41 (s, 3H), 2.30 (s, 3H).
1-82	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.05 – 7.89 (m, 4H), 7.76 – 7.59 (m, 4H), 7.25 (s, 1H).
1-83	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.59 – 7.52 (m, 2H), 7.49 – 7.40 (m, 5H), 7.33 (s, 1H), 7.32 – 7.28 (m, 1H).
1-84	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.12 – 8.06 (m, 2H), 7.37 – 7.19 (m, 3H), 7.15 – 7.03 (m, 3H), 3.80 (s, 3H).
1-85	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.93 – 7.58 (m, 2H), 7.46 – 7.39 (m, 2H), 7.23 (s, 1H), 7.11 – 7.03 (m, 4H), 5.19 (s, 1H).
1-86	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.90 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.81 – 7.73 (m, 2H), 7.75 – 7.68 (m, 1H), 7.44 (s, 1H), 7.39 – 7.16 (m, 3H).
1-87	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.10 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.60 – 7.43 (m, 3H), 7.46 – 7.37 (m, 3H), 7.25 – 7.15 (m, 2H), 2.39 (s, 3H).
1-88	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.83 – 7.68 (m, 2H), 7.52 – 7.33 (m, 4H), 7.27 – 7.21 (m, 3H).
1-89	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.96 – 7.89 (m, 2H), 7.85 – 7.79 (m, 2H), 7.73 (s, 1H), 7.46 – 7.38 (m, 2H), 7.33 – 7.26 (m, 2H), 7.22 (s, 1H), 2.71 (q, $J = 8.0$ Hz, 2H), 2.10 (s, 3H), 1.21 (t, $J = 8.0$ Hz, 3H).
1-90	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.71 – 7.65 (m, 2H), 7.48 – 7.34 (m, 2H), 7.25 – 7.20 (m, 3H), 6.82 – 6.75 (m, 2H), 3.02 (s, 6H).
1-91	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.57 (d, $J = 2.0$ Hz, 1H), 7.50 – 7.36 (m, 4H), 7.33 (s, 1H), 7.11 – 7.03 (m, 2H).

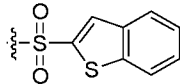
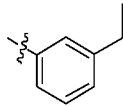
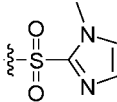
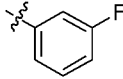
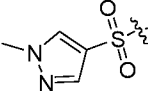
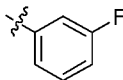
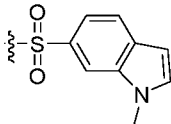
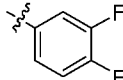
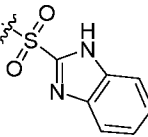
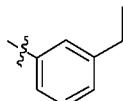
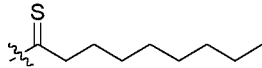
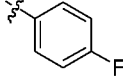
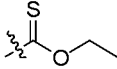
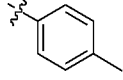
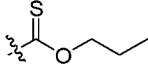
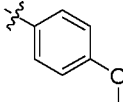
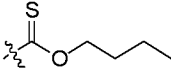
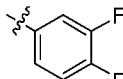
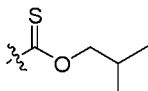
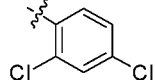
1-92	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.24 (d, J = 2.0 Hz, 1H), 7.73 (dd, J = 7.5, 2.0 Hz, 1H), 7.54 (d, J = 7.5 Hz, 1H), 7.52 (d, J = 7.5 Hz, 2H), 7.25 (s, 1H), 7.13 (d, J = 7.5 Hz, 2H), 2.77 (d, J = 8.0 Hz, 2H), 1.19 (t, J = 8.0 Hz, 3H).
1-93	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.53 – 7.45 (m, 2H), 7.41 – 7.32 (m, 2H), 7.25 (s, 1H), 7.15 – 7.03 (m, 2H).
1-94	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.31 – 7.27 (m, 3H), 7.31 – 7.24 (m, 1H), 7.27 – 7.18 (m, 3H), 7.17 – 7.08 (m, 2H), 3.92 (s, 2H).
1-95	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.53 – 7.46 (m, 3H), 7.43 – 7.31 (m, 3H), 7.25 – 7.15 (m, 3H), 3.54 (s, 2H).
1-96	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.59 – 7.41 (m, 5H), 7.39 – 7.27 (m, 5H), 7.16 (s, 1H), 5.90 (d, J = 10.5 Hz, 1H).
1-97	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.50 – 7.42 (m, 4H), 7.45 – 7.35 (m, 5H), 7.11 – 7.00 (d, J = 11.0 Hz, 1H), 5.87 (d, J = 11.0 Hz, 1H).
1-98	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.62 – 7.55 (m, 2H), 7.47 – 7.38 (m, 4H), 7.34 (s, 1H), 7.11 – 7.03 (m, 2H), 5.99 (s, 2H).
1-99	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.40 – 7.30 (m, 3H), 7.29 – 7.18 (m, 3H), 7.21 (s, 1H), 6.99 – 6.87 (m, 3H), 3.10 (t, J = 8.0 Hz, 2H), 3.00 (t, J = 8.0 Hz, 2H).
1-100	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.48 – 7.40 (m, 3H), 7.24 – 7.16 (m, 3H), 7.11 – 7.03 (m, 3H), 5.69 (s, 2H), 5.56 (s, 2H).
1-101	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.51 – 7.38 (m, 3H), 7.25 – 7.14 (m, 3H), 7.17 (s, 1H), 7.08 – 7.00 (m, 2H), 4.52 (s, 2H), 4.31 (s, 3H).
1-102	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.49 – 7.41 (m, 3H), 7.21 (s, 1H), 7.11 – 7.03 (m, 2H), 6.89 – 6.81 (m, 4H).
1-103	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.58 – 7.46 (m, 3H), 7.32 – 7.20 (m, 5H), 7.19 – 7.07 (m, 2H), 3.70 (t, J = 8.0 Hz, 2H),

				2.90 (t, $J = 8.0$ Hz, 2H), 2.70 (s, 3H).
1-104	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.57 – 7.51 (m, 2H), 7.52 – 7.45 (m, 2H), 7.33 (s, 1H), 7.27 (s, 1H), 7.28 – 7.16 (m, 1H).
1-105	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.55 (dd, $J = 7.5, 1.5$ Hz, 1H), 7.42 – 7.33 (m, 3H), 7.24 (s, 1H), 7.28 – 7.16 (m, 3H), 6.48 (t, $J = 7.5$ Hz, 1H), 3.68 (s, 3H).
1-106	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.63 (d, $J = 7.5$ Hz, 2H), 7.41 – 7.34 (m, 2H), 7.24 (s, 1H), 7.15 – 7.02 (m, 2H), 6.47 – 6.38 (m, 1H).
1-107	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.11 – 8.06 (m, 1H), 7.57 – 7.50 (m, 2H), 7.33 – 7.27 (m, 1H), 7.25 (s, 1H), 2.62 (s, 3H).
1-108	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.42 – 7.28 (m, 2H), 7.24 (s, 1H), 7.20 – 7.09 (m, 1H), 6.58 (s, 1H), 2.42 (s, 3H).
1-109	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.19 – 8.07 (m, 1H), 7.43 – 7.27 (m, 3H), 7.24 (s, 1H), 7.20 – 7.06 (m, 2H).
1-110	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.37 (d, $J = 2.5$ Hz, 1H), 7.36 – 7.28 (m, 2H), 7.22 (s, 1H), 7.11 – 7.03 (m, 2H), 6.80 (d, $J = 7.5$ Hz, 1H).
1-111	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.75 (d, $J = 1.3$ Hz, 1H), 7.70 (d, $J = 8.0$ Hz, 2H), 7.38 (d, $J = 8.0$ Hz, 2H).
1-112	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 9.21 (s, 1H), 8.79 (d, $J = 5.5$ Hz, 1H), 8.73 (d, $J = 5.5$ Hz, 1H), 7.24 – 7.13 (m, 4H).
1-113	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.56 (dd, $J = 5.0, 1.0$ Hz, 1H), 7.80 (dd, $J = 8.0, 1.0$ Hz, 1H), 7.37 (dd, $J = 8.0, 5.0$ Hz, 1H), 7.30 – 7.23 (m, 2H), 7.18 – 7.13 (m, 2H), 2.97 (q, $J = 8.0$ Hz, 2H), 1.39 (t, $J = 8.0$ Hz, 3H).
1-114	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.12 – 8.02 (m, 2H), 8.08 – 7.99 (m, 2H), 8.00 – 7.94 (m, 1H), 7.73 – 7.64 (m, 2H), 7.49 – 7.41 (m, 2H), 7.26 (s, 1H), 7.11 – 7.03 (m, 2H).

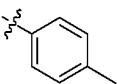
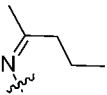
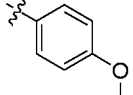
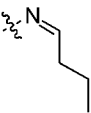
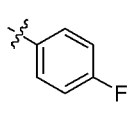
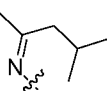
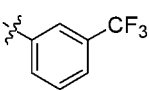
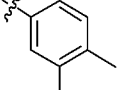
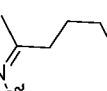
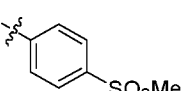
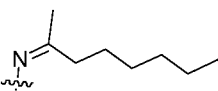
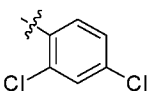
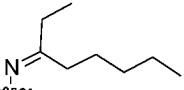
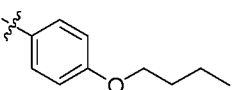
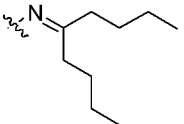
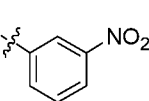
1-115	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.66 – 8.59 (m, 2H), 7.97 (dd, J = 7.5, 1.5 Hz, 1H), 7.62 (d, J = 7.5 Hz, 1H), 7.46 – 7.40 (m, 1H), 7.32 – 7.25 (m, 2H), 7.26 – 7.15 (m, 2H), 6.66 – 6.52 (m, 1H).
1-116	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.33 – 8.05 (m, 3H), 7.92 (d, J = 7.5, 1.5 Hz, 1H), 7.77 – 7.67 (m, 2H), 7.54 – 7.48 (m, 2H), 7.45 – 7.39 (m, 2H), 7.27 (s, 1H).
1-117	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.23 – 8.04 (m, 2H), 7.92 (d, J = 7.5 Hz, 1H), 7.75 (d, J = 7.5 Hz, 1H), 7.56 – 7.48 (m, 2H), 7.41 – 7.30 (m, 3H), 7.25 (s, 1H), 6.86 (dd, J = 7.5, 1.5 Hz, 1H).
1-118	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.77 (dd, J = 7.0, 2.5 Hz, 1H), 7.72 (d, J = 7.5 Hz, 2H), 7.62 – 7.56 (m, 2H), 7.24 (s, 1H), 7.19 – 7.10 (m, 2H), 5.99 (s, 2H).
1-119	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.11 – 8.02 (m, 2H), 7.59 – 7.41 (m, 1H), 7.50 – 7.40 (m, 3H), 7.36 – 7.30 (m, 2H), 7.11 – 7.03 (m, 2H).
1-120	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.65 – 7.58 (m, 2H), 7.54 (d, J = 1.5 Hz, 1H), 7.44 – 7.33 (m, 2H), 7.32 – 7.24 (m, 1H), 7.28 (s, 1H), 7.26 – 7.15 (m, 2H).
1-121	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.62 (s, 1H), 7.51 – 7.44 (m, 2H), 7.11 – 7.03 (m, 2H), 3.07 (q, J = 8.0 Hz, 2H), 1.50 (t, J = 8.0 Hz, 3H).
1-122	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.77 (d, J = 7.5 Hz, 2H), 7.57 – 7.50 (m, 3H), 1.72 – 1.61 (m, 1H), 0.81 – 0.73 (m, 2H), 0.58 – 0.51 (m, 2H).
1-123	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.66 – 7.52 (m, 2H), 7.46 – 7.39 (m, 2H), 7.34 – 7.29 (m, 1H), 5.15 (s, 2H), 3.05 (s, 3H), 2.71 (d, J = 8.0 Hz, 2H), 1.21 (t, J = 8.0 Hz, 3H).
1-124	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.63 – 7.59 (m, 2H), 7.45 – 7.33 (m, 2H), 7.25 – 7.18 (m, 1H), 4.45 (s, 1H), 3.75 (t, J = 7.5 Hz, 2H), 2.63 (t, J = 7.5 Hz, 2H), 1.83 – 1.68 (m, 2H).

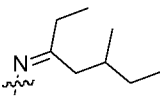
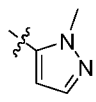
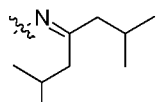
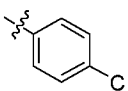
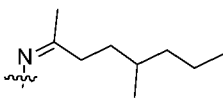
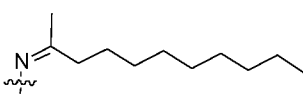
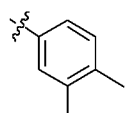
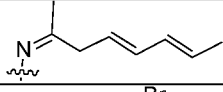
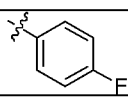
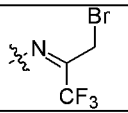
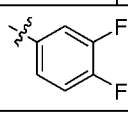
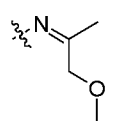
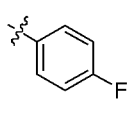
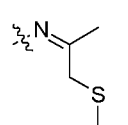
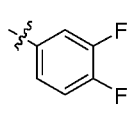
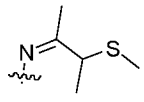
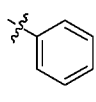
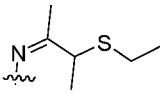
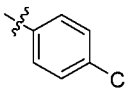
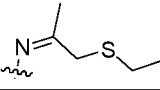
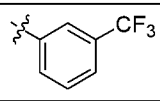
1-125	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.57 (s, 1H), 7.45 – 7.37 (m, 2H), 7.11 – 7.03 (m, 2H), 2.50 – 2.38 (m, 8H), 2.27 (s, 3H).
1-126	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.76 – 7.70 (m, 2H), 7.61 (s, 1H), 7.49 – 7.43 (m, 2H), 7.41 – 7.30 (m, 1H), 7.20 – 7.10 (m, 2H), 2.42 (s, 3H).
1-127	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.78 (d, J = 7.5 Hz, 2H), 7.64 (s, 1H), 7.56 – 7.41 (m, 1H), 7.51 – 7.42 (m, 2H), 7.19 – 7.10 (m, 2H).
1-128	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.78 – 7.64 (m, 2H), 7.56 – 7.41 (m, 1H), 7.51 – 7.42 (m, 2H), 7.19 – 7.10 (m, 2H).
1-129	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.86 (d, J = 7.5 Hz, 2H), 7.76 (d, J = 7.5 Hz, 2H), 7.59 (s, 1H), 7.42 – 7.34 (m, 1H), 7.16 – 7.07 (m, 2H).
1-130	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.91 (d, J = 7.5 Hz, 2H), 7.78 (d, J = 7.5 Hz, 2H), 7.59 (s, 1H), 7.45 – 7.38 (m, 1H), 7.26 – 7.17 (m, 2H).
1-131	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.70 (s, 1H), 7.64 – 7.57 (m, 2H), 7.41 – 7.31 (m, 3H), 7.08 (s, 2H), 2.55 (s, 6H), 2.13 (s, 3H).
1-132	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.76 – 7.70 (m, 2H), 7.58 (s, 1H), 7.45 (ddd, J = 7.6, 6.2, 2.1 Hz, 4H), 7.11 – 7.03 (m, 2H), 2.42 (d, J = 1.5 Hz, 2H).
1-133	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.83 (d, J = 2.0 Hz, 1H), 7.71 – 7.63 (m, 2H), 7.55 – 7.47 (m, 3H), 7.11 – 7.03 (m, 2H).
1-134	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.84 – 7.76 (m, 2H), 7.59 (s, 1H), 7.49 – 7.41 (m, 2H), 7.33 – 7.24 (m, 2H), 7.11 – 7.03 (m, 2H).
1-135	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.46 (d, J = 7.5 Hz, 2H), 8.07 (d, J = 7.5 Hz, 2H), 7.58 (s, 1H), 7.32 – 7.22 (m, 3H).
1-136	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.32 (s, 1H), 8.08 (s, 1H), 7.60 – 7.50 (m, 3H), 7.41 – 7.30 (m, 3H).
1-137	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.17 – 8.11 (m, 2H), 8.12 – 8.05 (m, 2H), 7.53 (s, 1H), 7.46 – 7.38 (m, 2H), 7.11 –

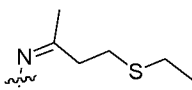
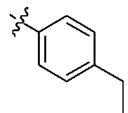
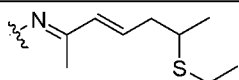
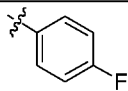
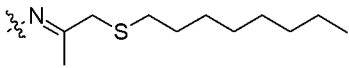
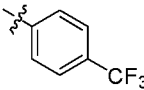
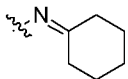
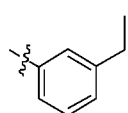
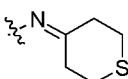
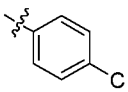
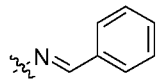
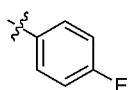
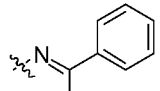
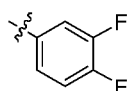
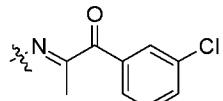
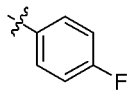
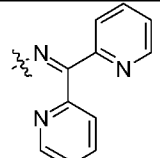
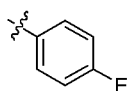
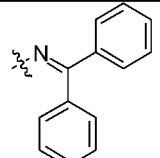
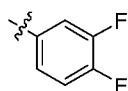
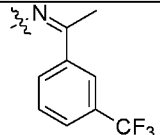
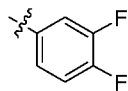
				7.03 (m, 2H), 3.30 (s, 3H).
1-138	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.61 (s, 1H), 7.64 – 7.57 (m, 1H), 7.52 – 7.39 (m, 2H), 7.28 – 7.17 (m, 2H).
1-139	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.60 – 7.50 (m, 3H), 7.43 (d, J = 7.5 Hz, 2H), 7.40 (dd, J = 2.5, 1.5 Hz, 1H), 7.32 – 7.26 (m, 2H), 7.18 (s, 1H), 7.43 (t, J = 73.5 Hz, 1H).
1-140	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.33 – 8.28 (m, 2H), 8.17 – 8.06 (m, 1H), 7.73 – 6.65 (m, 1H), 7.60 – 7.51 (m, 3H), 7.41 – 7.30 (m, 3H), 2.60 (s, 3H).
1-141	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.10 (d, J = 7.5 Hz, 2H), 8.04 (d, J = 7.5 Hz, 2H), 7.69 (d, J = 7.5 Hz, 2H), 7.57 (d, J = 7.5 Hz, 2H), 7.17 (s, 1H), 6.41 (s, 2H).
1-142	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.79 – 7.70 (m, 3H), 7.45 – 7.38 (m, 2H), 7.31 – 7.19 (m, 3H), 7.18 – 7.12 (m, 2H), 7.12 – 7.04 (m, 2H).
1-143	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.60 (s, 1H), 7.53 – 7.45 (m, 2H), 7.30 – 7.20 (m, 5H), 7.11 – 7.03 (m, 2H), 4.29 (s, 2H).
1-144	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.80 (dd, J = 7.5, 1.5 Hz, 1H), 8.26 – 8.15 (m, 2H), 8.01 – 7.78 (m, 2H), 7.58 – 7.50 (m, 4H), 7.51 – 7.40 (m, 3H).
1-145	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.16 (d, J = 2.5 Hz, 1H), 7.75 – 7.69 (m, 2H), 7.47 – 7.36 (m, 3H), 7.33 – 7.24 (m, 1H), 2.71 – 2.61 (d, J = 8.0 Hz, 2H), 1.21 (t, J = 8.0 Hz, 3H).
1-146	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.41 (d, J = 1.5 Hz, 1H), 7.99 (dd, J = 8.0, 1.5 Hz, 1H), 7.63 (s, 1H), 7.50 – 7.39 (m, 4H), 7.32 – 7.21 (m, 2H), 7.18 – 7.08 (m, 3H), 6.96 (dd, J = 7.5, 2.0 Hz, 1H).
1-147	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 9.38 (s, 1H), 8.81 (d, J = 1.5 Hz, 1H), 7.99 – 7.91 (m, 2H), 7.63 (s, 1H), 7.48 – 7.25 (m, 3H).
1-148	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.43 (d, J = 1.5 Hz, 1H), 8.15 (dd, J = 2.5, 1.5 Hz, 1H), 7.85 (dd, J = 7.5, 1.5 Hz, 1H), 7.77 – 7.60 (m, 3H), 7.56 – 7.49 (m,

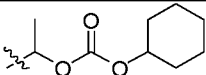
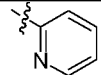
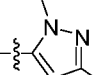
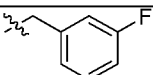
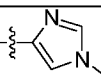
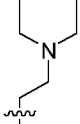
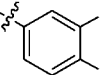
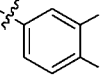
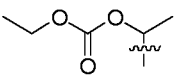
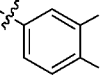
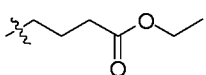
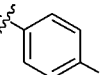
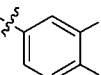
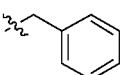
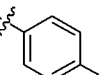
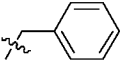
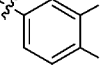
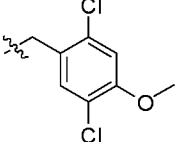
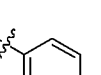
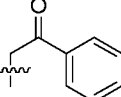
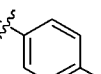
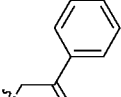
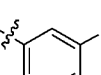
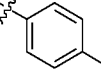
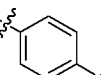
				3H).
1-149	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.97 (dd, J = 6.5, 2.0 Hz, 1H), 7.70 – 7.65 (m, 2H), 7.61 (d, J = 1.5 Hz, 1H), 7.53 – 7.43 (m, 3H), 7.37 – 7.27 (m, 3H), 2.71 – 2.62 (d, J = 8.0 Hz, 2H), 1.21 (t, J = 8.0 Hz, 3H).
1-150	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.73 (s, 1H), 7.59 – 7.49 (m, 2H), 7.36 (d, J = 2.5 Hz, 1H), 7.31 – 7.25 (m, 3H), 3.66 (s, 3H).
1-151	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.73 – 7.65 (m, 2H), 7.62 (s, 1H), 7.57 – 7.42 (m, 2H), 7.25 – 7.19 (m, 2H), 3.92 (s, 3H).
1-152	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.93 – 7.85 (m, 2H), 7.80 (dd, J = 7.5, 1.5 Hz, 1H), 7.72 (s, 1H), 7.33 – 7.19 (m, 3H), 7.11 (d, J = 7.5 Hz, 1H), 6.50 (dd, J = 7.5, 1.5 Hz, 1H), 3.80 (s, 3H).
1-153	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.76 – 7.60 (m, 4H), 7.56 – 7.44 (m, 4H), 7.26 – 7.14 (m, 2H), 2.66 (q, J = 8.0 Hz, 1H), 1.21 (t, J = 8.0 Hz, 1H).
1-154	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.45 (dd, J = 7.5, 5.5 Hz, 2H), 7.28 (s, 1H), 7.07 (dd, J = 9.0, 7.5 Hz, 2H), 1.41 (t, J = 8.0 Hz, 2H), 1.36 – 1.22 (m, 12H), 0.93 (t, J = 8.0 Hz, 3H).
1-155	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.44 (d, J = 7.5 Hz, 2H), 7.22 – 7.13 (m, 3H), 3.62 (q, J = 8.0 Hz, 2H), 2.33 (s, 3H), 1.36 (t, J = 8.0 Hz, 3H).
1-156	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.50 (d, J = 7.5 Hz, 2H), 7.21 (s, 1H), 6.80 (d, J = 7.5 Hz, 2H), 3.80 (s, 3H), 3.60 (t, J = 7.5 Hz, 2H), 1.78 – 1.66 (m, 2H), 1.01 (t, J = 8.0 Hz, 3H).
1-157	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.30 – 7.22 (m, 2H), 7.20 (s, 1H), 7.15 – 7.05 (m, 1H), 3.65 (t, J = 8.0 Hz, 2H), 1.46 – 1.36 (m, 4H), 1.03 (t, J = 8.0 Hz, 3H).
1-158	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.52 – 7.43 (m, 2H), 7.34 (s, 1H), 7.27 (dd, J = 7.5, 2.0 Hz, 1H), 3.45 (d, J = 7.0 Hz, 2H), 1.49 – 1.38 (m, 1H), 0.92 (d, J = 7.5 Hz, 6H).

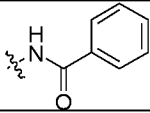
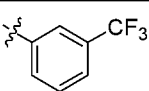
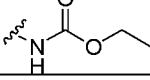
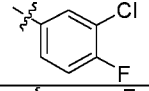
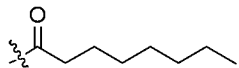
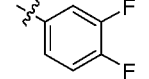
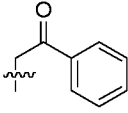
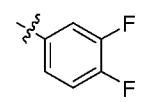
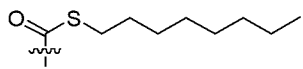
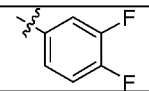
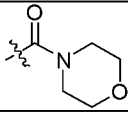
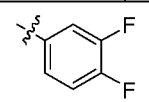
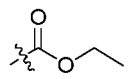
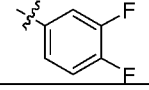
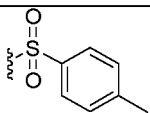
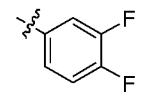
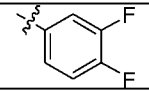
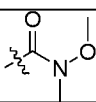
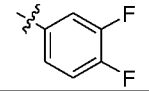
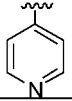
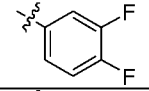
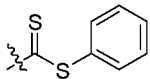
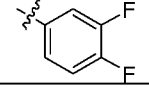
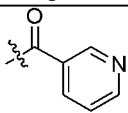
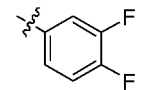
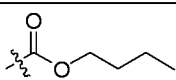
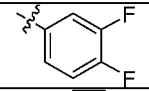
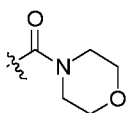
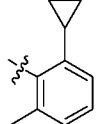
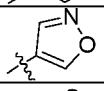
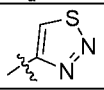
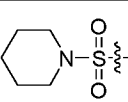
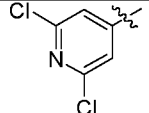
1-159	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.84 (dd, $J = 2.0$ Hz, 1H), 7.62 (d, $J = 7.5$ Hz, 1H), 7.43 – 7.33 (m, 1H), 7.19 (s, 1H), 3.60 (t, $J = 7.5$ Hz, 2H), 2.50 (s, 3H), 1.67 – 1.60 (m, 1H), 1.43 – 1.31 (m, 2H), 0.97 (d, $J = 6.5$ Hz, 6H).
1-160	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.31 (d, $J = 7.5$ Hz, 1H), 7.22 (s, 1H), 7.14 (d, $J = 7.5$ Hz, 1H), 3.60 (t, $J = 7.0$ Hz, 2H), 1.65 – 1.55 (m, 2H), 1.43 – 1.31 (m, 6H), 0.89 (t, $J = 7.5$ Hz, 3H).
1-161	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.40 – 7.35 (m, 2H), 7.33 – 7.15 (m, 3H), 3.88 – 3.73 (m, 1H), 2.65 – 2.55 (m, 2H), 1.69 – 1.55 (m, 2H), 1.59 – 1.39 (m, 3H), 1.28 – 1.07 (m, 11H), 0.89 (t, $J = 7.5$ Hz, 3H).
1-162	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.45 – 7.37 (m, 2H), 7.20 (s, 1H), 7.11 – 7.03 (m, 2H), 3.65 (q, $J = 8.0$ Hz, 4H), 1.17 (t, $J = 8.0$ Hz, 6H).
1-163	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.45 – 7.37 (m, 2H), 7.24 – 7.11 (m, 2H), 2.85 (t, $J = 8.0$ Hz, 2H), 1.94 – 1.81 (m, 2H), 1.38 – 1.29 (m, 2H), 1.32 – 1.20 (m, 8H), 0.93 – 0.85 (t, $J = 8.0$ Hz, 3H).
1-164	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.53 – 7.47 (m, 2H), 7.48 – 7.40 (m, 2H), 7.28 – 7.20 (m, 3H), 7.11 – 7.03 (m, 3H).
1-165	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.40 – 7.28 (m, 2H), 7.19 – 7.14 (m, 2H), 2.61 (q, $J = 8.0$ Hz, 2H), 1.35 (t, $J = 8.0$ Hz, 3H).
1-166	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.45 – 7.37 (m, 2H), 7.28 (s, 1H), 7.11 – 7.03 (m, 2H).
1-167	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.58 (dd, $J = 5.5, 2.0$ Hz, 1H), 7.36 – 7.29 (m, 1H), 7.32 (s, 1H), 7.16 (dd, $J = 10.5, 7.5$ Hz, 1H), 3.78 (s, 6H).
1-168	CF ₃			
1-169	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.38 – 7.30 (m, 1H), 7.25 – 7.13 (m, 2H), 7.08 (s, 1H), 2.65 (s, 6H).

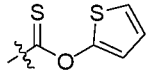
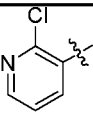
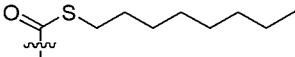
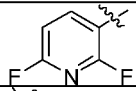
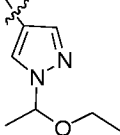
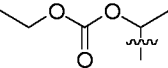
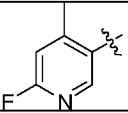
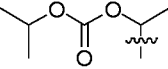
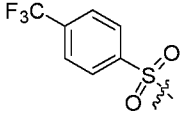
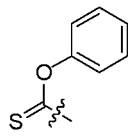
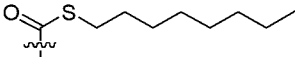
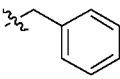
1-170	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.46 (d, $J = 7.0$ Hz, 2H), 7.20 (d, $J = 7.0$ Hz, 2H), 7.15 (s, 1H), 2.59 (s, 3H), 2.33 (s, 3H), 2.17 (q, $J = 8.0$ Hz, 2H), 0.92 (t, $J = 8.0$ Hz, 3H).
1-171	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.49 (d, $J = 7.5$ Hz, 2H), 6.80 – 6.74 (m, 3H), 3.80 (s, 3H), 2.58 (s, 3H), 2.11 (t, $J = 7.5$ Hz, 2H), 1.54 – 1.44 (m, 2H), 0.76 (t, $J = 8.0$ Hz, 3H).
1-172	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 – 7.40 (m, 2H), 7.15 (s, 1H), 7.11 – 7.03 (m, 2H), 6.87 (t, $J = 7.0$ Hz, 1H), 2.11 – 2.00 (m, 2H), 1.54 – 1.42 (m, 2H), 0.81 (t, $J = 8.0$ Hz, 3H).
1-173	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.95 – 7.89 (m, 2H), 7.72 – 7.66 (m, 2H), 7.09 (s, 1H), 2.62 (s, 3H), 2.05 (d, $J = 7.0$ Hz, 2H), 1.77 – 1.68 (m, 1H), 0.97 (d, $J = 6.5$ Hz, 6H).
1-174	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.41 (d, $J = 2.0$ Hz, 1H), 7.32 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.15 (d, $J = 7.5$ Hz, 1H), 7.08 (s, 1H), 2.66 (s, 3H), 2.30 (s, 3H), 2.20 (s, 3H), 1.16 (s, 9H).
1-175	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.99 (d, $J = 7.0$ Hz, 2H), 7.87 – 7.81 (m, 3H), 3.30 (s, 3H), 2.59 (s, 3H), 2.11 (t, $J = 8.0$ Hz, 2H), 1.55 – 1.40 (m, 4H), 0.95 (t, $J = 8.0$ Hz, 3H).
1-176	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.54 (d, $J = 2.0$ Hz, 1H), 7.49 (d, $J = 7.5$ Hz, 1H), 7.34 (dd, $J = 7.5, 2.0$ Hz, 1H), 7.14 (s, 1H), 2.57 (s, 3H), 2.11 (t, $J = 8.0$ Hz, 2H), 1.55 – 1.47 (m, 2H), 1.34 – 1.23 (m, 6H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-177	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.50 (d, $J = 7.5$ Hz, 2H), 7.19 – 7.03 (m, 3H), 4.00 (t, $J = 7.5$ Hz, 2H), 2.21 – 2.07 (m, 4H), 1.60 – 1.44 (m, 8H), 1.36 – 1.23 (m, 5H), 1.04 (t, $J = 8.0$ Hz, 3H), 0.92 (t, $J = 8.0$ Hz, 3H).
1-178	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.43 – 8.25 (m, 2H), 7.91 – 7.80 (m, 1H), 7.63 – 7.55 (m, 1H), 7.16 (s, 1H), 2.11 (t, $J = 7.5$ Hz, 4H), 1.55 – 1.40 (m, 8H), 0.95 (t, $J = 8.0$ Hz, 6H).

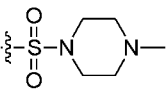
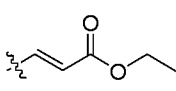
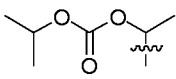
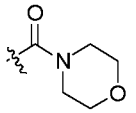
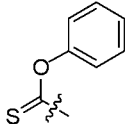
1-179	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.62 (d, J = 2.5 Hz, 1H), 7.30 (s, 1H), 6.45 (d, J = 2.5 Hz, 1H), 4.00 (s, 3H), 2.55 – 2.41 (m, 2H), 2.32 – 2.02 (m, 2H), 1.68 – 1.57 (m, 1H), 1.37 – 1.19 (m, 2H), 1.02 – 0.88 (m, 9H).
1-180	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 (d, J = 7.0 Hz, 2H), 7.17 – 7.03 (m, 3H), 2.05 (d, J = 7.0 Hz, 4H), 1.72 – 1.60 (m, 2H), 0.96 (d, J = 6.5 Hz, 12H).
1-181	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.59 – 7.51 (m, 2H), 7.41 – 7.33 (m, 3H), 7.16 (s, 1H), 2.59 (s, 3H), 2.40 (t, J = 7.5 Hz, 2H), 1.61 – 1.55 (m, 3H), 1.31 – 1.15 (m, 2H), 1.17 – 1.09 (m, 1H), 1.12 – 1.02 (m, 2H), 0.85 (t, J = 7.5 Hz, 2H), 0.74 (d, J = 6.5 Hz, 3H).
1-182	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.35 – 7.27 (m, 2H), 7.16 (dd, J = 7.5, 1.0 Hz, 1H), 7.13 (s, 1H), 2.57 (s, 3H), 2.30 (s, 3H), 2.20 (s, 3H), 2.11 (t, J = 8.0 Hz, 2H), 1.55 – 1.22 (m, 14H), 0.89 (t, J = 8.0 Hz, 3H).
1-183	CF ₃			
1-184	CF ₃			
1-185	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 – 7.40 (m, 2H), 7.16 (s, 1H), 7.11 – 7.03 (m, 2H), 4.21 (s, 2H), 3.19 (s, 3H), 2.57 (s, 3H).
1-186	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.44 – 7.37 (m, 1H), 7.25 – 7.16 (m, 2H), 7.16 (s, 1H), 3.28 (s, 2H), 2.60 (s, 3H), 2.00 (s, 3H).
1-187	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.59 – 7.51 (m, 2H), 7.41 – 7.27 (m, 3H), 7.14 (s, 1H), 2.73 (q, J = 6.5 Hz, 1H), 2.59 (s, 3H), 2.10 (s, 3H), 1.31 (d, J = 6.5 Hz, 3H).
1-188	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.45 (d, J = 7.5 Hz, 2H), 7.25 (d, J = 7.5 Hz, 2H), 7.11 (s, 1H), 2.73 (q, J = 6.5 Hz, 1H), 2.59 (s, 3H), 2.19 (d, J = 8.0 Hz, 2H), 1.31 (d, J = 6.5 Hz, 3H), 1.24 (t, J = 8.0 Hz, 3H).
1-189	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.01 – 7.91 (m, 2H), 7.70 – 7.53 (m, 2H), 7.19 (s, 1H),

				3.28 (s, 2H), 2.60 (s, 3H), 2.48 (q, $J = 8.0$ Hz, 2H), 1.21 (t, $J = 8.0$ Hz, 3H).
1-190	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.46 (d, $J = 7.0$ Hz, 1H), 7.17 – 7.10 (m, 3H), 2.75 – 2.63 (m, 4H), 2.59 (s, 3H), 2.49 (q, $J = 8.0$ Hz, 2H), 1.21 (t, $J = 8.0$ Hz, 3H).
1-191	CF ₃			
1-192	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.73 (d, $J = 7.5$ Hz, 1H), 7.60 – 7.53 (m, 3H), 3.28 (s, 2H), 2.71 (t, $J = 8.0$ Hz, 1H), 2.58 (s, 3H), 1.38 – 1.20 (m, 12H), 0.93 (t, $J = 8.0$ Hz, 3H).
1-193	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.50 – 7.40 (m, 1H), 7.37 – 7.28 (m, 2H), 7.22 – 7.17 (m, 1H), 7.11 (s, 1H), 2.71 – 2.62 (m, 4H), 2.17 (q, $J = 8.0$ Hz, 2H), 1.60 – 1.50 (m, 6H), 1.21 (t, $J = 8.0$ Hz, 3H).
1-194	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.53 (t, $J = 7.0$ Hz, 2H), 7.44 (t, $J = 7.0$ Hz, 2H), 7.15 (s, 1H), 2.66 – 2.53 (m, 4H), 2.50 – 2.36 (m, 4H).
1-195	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.58 – 7.50 (m, 2H), 7.52 – 7.39 (m, 4H), 7.33 – 7.26 (m, 2H), 7.17 (s, 1H), 7.11 – 7.03 (m, 2H).
1-196	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.50 (s, 5H), 7.53 – 7.40 (m, 1H), 7.28 – 7.19 (m, 2H), 7.15 (s, 1H), 3.08 (s, 3H).
1-197	CF ₃			
1-198	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.59 – 8.37 (m, 2H), 7.72 – 7.49 (m, 4H), 7.41 – 7.33 (m, 4H), 7.19 (s, 1H), 7.11 – 7.03 (m, 2H).
1-199	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.52 – 7.44 (m, 2H), 7.38 – 7.23 (m, 7H), 7.26 – 7.16 (m, 4H), 7.09 (s, 1H).
1-200	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.62 – 7.52 (m, 2H), 7.45 – 7.37 (m, 1H), 7.32 – 7.19 (m, 4H), 7.13 (s, 1H), 2.36 (s, 3H).

1-201	CF ₃			
1-202	CF ₃	OEt		
1-203	CF ₃			
1-204	CF ₃			
1-205	CF ₃			
1-206	CF ₃			
1-207	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.50 – 7.43 (m, 2H), 7.35 (s, 1H), 7.11 – 7.03 (m, 2H), 4.07 (q, <i>J</i> = 8.0 Hz, 2H), 3.95 (t, <i>J</i> = 7.5 Hz, 2H), 2.48 (t, <i>J</i> = 7.0 Hz, 2H), 2.11 – 2.00 (m, 2H), 1.17 (t, <i>J</i> = 8.0 Hz, 3H).
1-208	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.45 – 7.32 (m, 3H), 7.26 – 7.14 (m, 4H), 6.83 – 6.76 (m, 2H).
1-209	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.53 – 7.45 (m, 3H), 7.44 – 7.27 (m, 3H), 7.11 – 7.03 (m, 4H), 4.98 (s, 2H).
1-210	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.44 – 7.27 (m, 4H), 7.13 – 7.07 (m, 5H), 4.98 (s, 2H).
1-211	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.50 – 7.42 (m, 3H), 7.35 (s, 1H), 7.14 – 7.03 (m, 3H), 5.12 (s, 2H), 3.86 (s, 3H).
1-212	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.07 – 8.00 (m, 3H), 7.64 – 7.56 (m, 3H), 7.54 – 7.42 (m, 2H), 7.31 (s, 1H), 7.11 – 7.03 (m, 2H), 5.70 (s, 2H).
1-213	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 8.03 – 7.89 (m, 2H), 7.64 – 7.56 (m, 2H), 7.54 – 7.34 (m, 1H), 7.28 – 7.18 (m, 3H), 5.70 (s, 2H).
1-214	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.42 (d, <i>J</i> = 7.0 Hz, 2H), 7.22 (d, <i>J</i> = 7.0 Hz, 2H), 7.12 (s, 1H), 2.47 (s, 6H), 2.33 (s, 3H).
1-215	CF ₃			(500 MHz, Chloroform- <i>d</i>) δ 7.47 (d, <i>J</i> = 7.5 Hz, 2H), 7.39 (d, <i>J</i> = 7.5 Hz, 2H), 7.12 (s, 1H), 2.59 (q, <i>J</i> = 8.0 Hz, 4H), 1.04 (t, <i>J</i> = 8.0 Hz, 6H).

1-216	CF ₃			
1-217	CF ₃			
1-218	CH ₂ F			
1-219	CH ₂ F			
1-220	CH ₂ F			
1-221	CHF ₂			
1-222	CHF ₂			
1-223	CF ₂ CF ₃			
1-224	CF ₂ CF ₃			
1-225	CF ₂ CF ₃			
1-226	CF ₃			
1-227	CF ₃			
1-228	CF ₃			
1-229	CF ₃			
1-230	CF ₃			
1-231	CF ₃			
1-232	CF ₃			
1-233	CF ₃			
1-234	CF ₃			

1-235	CF ₃			
1-236	CF ₃			
1-237	CF ₃			
1-238	CF ₃			
1-239	CF ₃			
1-240	CF ₃			¹ H NMR (500 MHz, Chloroform-d) 7.56 - 7.48 (m, 2H), 7.41 - 7.33 (m, 3H), 7.00 - 6.91 (m, 2H), 5.27 (hept, J = 6.5 Hz, 1H), 1.73 (d, J = 7.0 Hz, 3H), 1.31 (d, J = 6.5 Hz, 6H).
1-241	CF ₃	CN		
1-242	CF ₃			¹ H NMR (500MHz, Chloroform-d) δ 7.77 – 7.66 (m, 4H), 7.60 – 7.53 (m, 2H), 7.41 – 7.22 (m, 3H).
1-243	CF ₃			¹ H NMR (500MHz, Chloroform-d) δ 7.51 – 7.44 (m, 2H), 7.42 – 7.33 (m, 4H), 7.20 (s, 1H), 7.07 – 7.00 (m, 3H).
1-244	CF ₃			¹ H NMR (500MHz, Chloroform-d) δ 7.59 – 7.51 (m, 2H), 7.41 – 7.33 (m, 2H), 7.15 (s, 1H), 2.59 (s, 3H), 2.51 (s, 3H), 2.30 (s, 3H).
1-245	CF ₃			¹ H NMR (500 MHz, Chloroform-d) δ 7.55 – 7.47 (m, 2H), 7.41 – 7.30 (m, 2H), 7.11 (s, 1H), 2.47 (s, 6H), 2.32 (s, 3H).
1-246	CF ₃			¹ H NMR (500 MHz, Chloroform-d) 7.58 - 7.42 (m, 3H), 7.31 - 7.12 (m, 3H), 2.85 (t, J = 7.5 Hz, 2H), 1.38 - 1.26 (m, 12H), 0.89 (t, J = 7.0 Hz, 1H).
1-247	CF ₃			¹ H NMR (500 MHz, Chloroform-d) 7.65 - 7.49 (m, 6H), 7.42 - 7.27 (m, 4H), 7.11 (s, 1H), 4.98 (s, 2H).

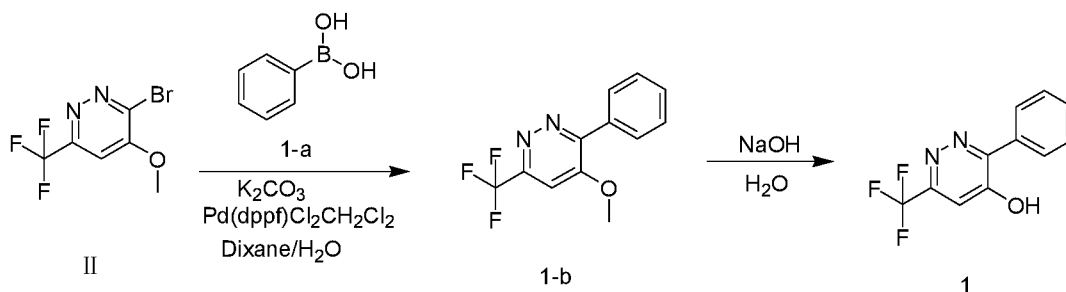
1-248	CF ₃			
1-249	CF ₃			
1-250	CF ₃			
1-251	CF ₃		Me	

制备本发明化合物的数种方法详解说明于以下方案和实施例中。原料可以经市场购买到或者可以通过文献中已知的方法或者如详解所示进行制备。本领域技术人员应当理解,也可以利用其它合成路线合成本发明的化合物。尽管在下文中已经对合成路线中的具体原料和条件进行了说明,但是,可以很容易地将其替换为其它类似的原料及条件,这些对本发明制备方法的变型或者变体而产生的诸如化合物的各种异构等都包括在本发明范围内。另外,如下所述制备方法可以按照本发明公开内容、使用本领域技术人员熟知的常规化学方法进行进一步修饰。例如,在反应过程中对适当的基团进行保护等等。

以下提供的方法实施例用于促进对本发明制备方法的进一步了解,使用的具体物质、种类和条件确定为是对本发明的进一步说明,并不是对其合理范围的限制。在下表中表明的合成化合物中使用的试剂或者可以市场购买到,或者可以由本领域普通技术人员轻易制备得到。

代表性化合物的实施例如下:

1、化合物 1 的合成



(1) 装置的构建: 50mL 圆底单口烧瓶, 磁力搅拌子, 恒温磁力搅拌器。

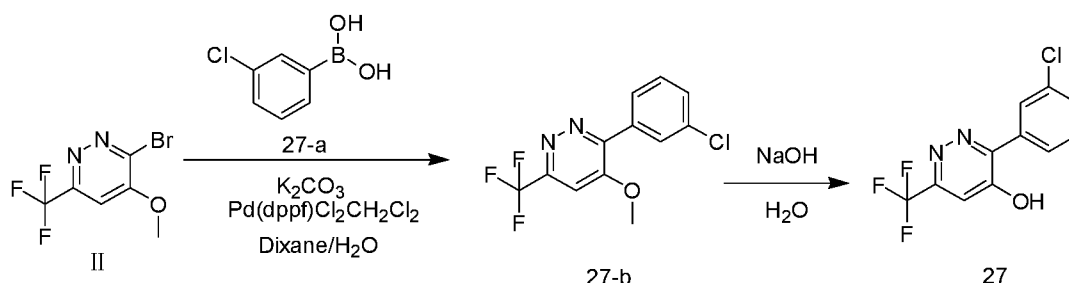
化合物 II (1g, 3.9 mmol), 化合物 1-a (0.72 g, 5.9 mmol), 碳酸钾 (1.62 g, 11.7 mmol) 置于圆底烧瓶中, 加入 1,4-二氧六环 (10 mL) / 水 (2 mL) 后置换氮气三次, 迅速加入 Pd(dppf)Cl₂CH₂CH₂Cl₂ (0.16 g) 后置换氮气三次, 然后反应液再次置换氮气三次, 最后 100°C 下反应 36 小时, 高效液相色谱检测反应结束后, 将反应体系浓缩, 柱层析分离, 得到 0.8 g (3.1

mmol, 收率 79%) 化合物 1-b (白色固体)。

(2) 装置的构建: 50mL 圆底单口烧瓶, 磁力搅拌子, 恒温磁力搅拌器, 球形冷凝管。

化合物 1-b (0.8 g, 3.1 mmol) 置于圆底烧瓶中, 加入水 8 mL、氢氧化钠 (0.37 g, 9.3 mmol) 后 80 °C 反应 12h。反应结束后, 反应液用二氯甲烷 30 mL 萃取三次, 水相用 1N HCl 溶液调至 pH 到 2, 反应析出白色固体, 经过滤得到滤饼, 干燥后得到 0.65 g (2.7 mmol, 收率 87%) 化合物 1。

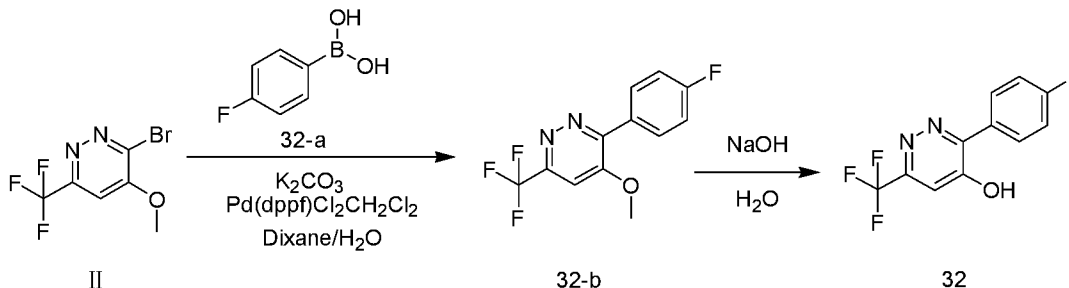
2、化合物 27 的合成



(1) 将化合物 II (1g, 3.9 mmol), 化合物 27-a (0.92 g, 5.9 mmol), 碳酸钾 (1.62 g, 11.7 mmol) 置于圆底烧瓶中, 加入 1,4-二氧六环 (10 mL) / 水 (2 mL) 后置换氮气三次, 迅速加入 Pd(dppf)Cl₂CH₂Cl₂ (0.16 g) 后置换氮气三次, 然后反应液再次置换氮气三次, 最后于 120 °C 下反应 36 小时, HPLC 检测反应结束, 浓缩柱层析纯化 (PE:EA= 5:1), 得到 0.71 g (2.4 mmol, 收率 61%) 化合物 27-b (白色固体)。

(2) 将化合物 27-b (0.71 g, 2.4 mmol) 置于圆底烧瓶中, 加入水 8 mL、氢氧化钠 (0.096 g, 2.4 mmol) 后于 120 °C 反应 12h。TLC 检测反应结束, 降温, 反应液用二氯甲烷 30 mL 萃取三次, 水相用 1N HCl 溶液调至 pH 到 2, 反应析出白色固体, 经过滤得到滤饼, 干燥后得到 0.35 g (1.3 mmol, 收率 87%) 化合物 27。

3、化合物 32 的合成

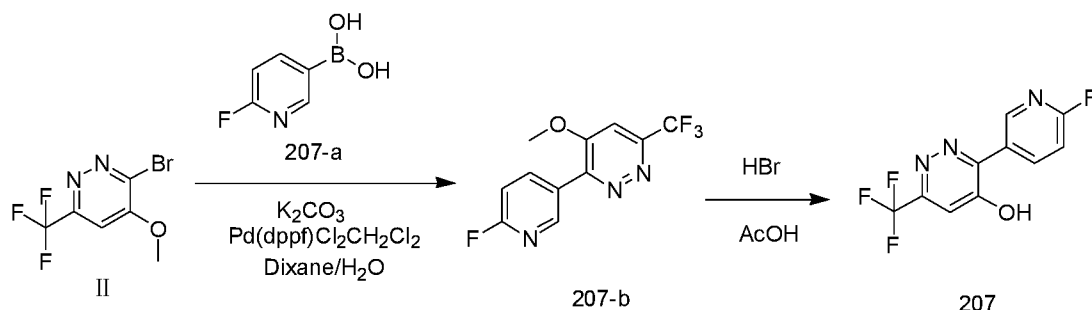


(1) 将化合物 II (1g, 3.9 mmol), 化合物 32-a (0.82 g, 5.9 mmol), 碳酸钾 (1.62 g, 11.7 mmol) 置于圆底烧瓶中, 加入 1,4-二氧六环 (10 mL) / 水 (1 mL) 后置换氮气三次, 迅速加入 Pd(dppf)Cl₂CH₂Cl₂ (0.16 g) 后置换氮气三次, 然后反应液再次置换氮气三次, 最后于 110 °C 下反应 36 小时, HPLC 检测反应结束, 浓缩柱层析纯化 (PE:EA= 5:1), 得到 0.8 g (3.1 mmol,

收率 79%) 化合物 32-b (白色固体)。

(2) 将化合物 32-b (0.8 g, 3.1 mmol) 置于圆底烧瓶中, 加入水 8 mL、氢氧化钠 (0.37 g, 9.3 mmol) 后 120 °C 反应 12h。TLC 检测反应结束, 降温, 反应液用二氯甲烷 30 mL 萃取三次, 水相用 1N HCl 溶液调至 pH 到 2, 反应析出白色固体, 经过滤得到滤饼, 干燥后得到 0.65 g (2.7 mmol, 收率 87%) 化合物 32。

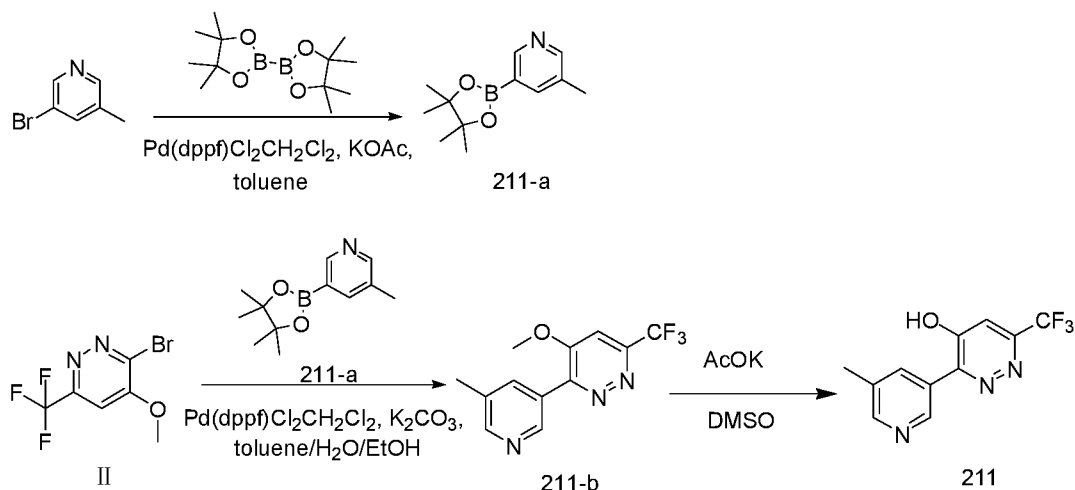
4、化合物 207 的合成



(1) 将化合物 II (1 g, 3.9 mmol), 化合物 207-a (0.83 g, 5.9 mmol), 碳酸钾 (1.61 g, 11.7 mmol) 置于圆底烧瓶中, 加入 1,4-二氧六环 (10 mL) / 水 (1 mL) 后置换氮气三次, 迅速加入 Pd(dppf)Cl₂CH₂Cl₂ (0.16 g) 后置换氮气三次, 然后反应液再次置换氮气三次, 最后于 110 °C 下反应 36 小时, HPLC 检测反应结束, 直接浓缩柱层析纯化 (PE:EA=3: 1), 得到 0.57 g (2.1 mmol, 收率 53%) 化合物 207-b (白色固体)。

(2) 将化合物 207-b (0.57 g, 2.1 mmol) 置于圆底烧瓶中, 加入 HBr(30 %, AcOH) 6 mL 于 50 °C 反应 12 h。HPLC 检测反应结束, 反应液降温至室温, 加水析出, 过滤即得白色固体, 干燥后得到 0.25 g (1.0 mmol, 收率 47 %) 化合物 207。

5、化合物 211 的合成

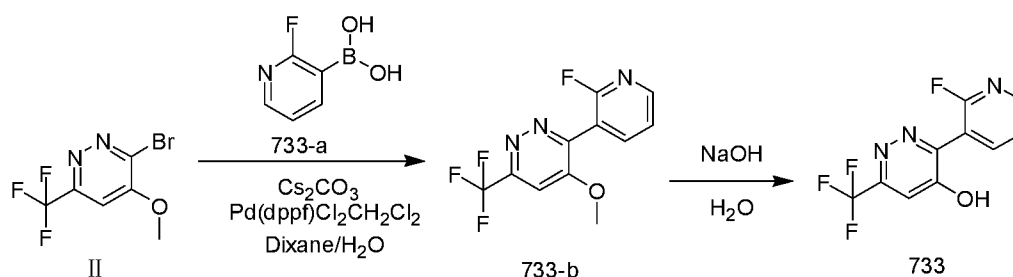


(1) 将化合物 Br- (1.0 g, 5.8 mmol, 1.0 eq), 双联硼酸频那醇酯 (1.6 g, 6.38 mmol, 1.1 eq), 醋酸钾 (1.1 g, 11.6 mmol, 2.0 eq) 置于 100mL 圆底烧瓶中, 加入甲苯 (40mL) 后置换

氮气一次，迅速加入 $\text{Pd(dppf)Cl}_2\text{CH}_2\text{Cl}_2$ (237mg, 0.29mmol, 0.05eq) 后置换氮气三次，加热到 120°C 反应 16h。体系冷却到室温，补加 化合物 II (1.48g, 5.8mmol, 1.0eq), K_2CO_3 (1.6g, 11.6mmol, 2.0eq), 95%乙醇 (8mL), 和 $\text{Pd(dppf)Cl}_2\text{CH}_2\text{Cl}_2$ (237mg, 0.29mmol, 0.05eq) 然后置换氮气三次，加热到 120°C (回流) 反应 4h。LCMS 检测反应结束，浓缩后加入硅胶拌样过柱纯化得产物 211-b (560mg, Y: 36%)。

(2) 将化合物 211-b (0.56 g, 2.0 mmol) 置于圆底烧瓶中，加入 AcOK (0.98 g, 10 mmol) 和 DMSO (5.6 mL) 后于 125°C 反应 3 h。反应结束后，降温，反应液加入 20 mL 水，用二氯甲烷 30 mL 萃取三次，水相用 1N HCl 溶液调至 pH 到 6，反应析出白色固体，经过滤拿到滤饼，干燥后得到 0.26 g 化合物 211 (1.6 mmol, 收率 50%)。

6、化合物 733 的合成



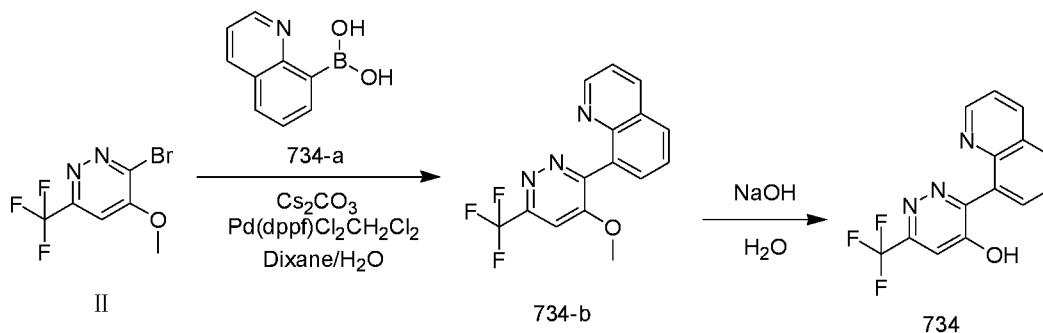
(1) 装置的构建: 50mL 圆底单口烧瓶, 磁力搅拌子, 恒温磁力搅拌器。

化合物 II (1g, 3.9 mmol), 化合物 733-a (0.83 g, 5.9 mmol), 碳酸铯 (3.81 g, 11.7 mmol) 置于圆底烧瓶中，加入 1,4-二氧六环 (20 mL) / 水 (5 mL) 后置换氮气三次，迅速加入 $\text{Pd(dppf)Cl}_2\text{CH}_2\text{CH}_2\text{Cl}_2$ (0.16 g) 后置换氮气三次，然后反应液再次置换氮气三次，最后 100°C 下反应 36 小时，高效液相色谱检测反应结束后，将反应体系浓缩，柱层析分离，得到 0.6 g (2.2 mmol, 收率 56%) 化合物 733-b (白色固体)。

(2) 装置的构建: 50mL 圆底单口烧瓶, 磁力搅拌子, 恒温磁力搅拌器, 球形冷凝管。

化合物 733-b (0.6 g, 2.2 mmol) 置于圆底烧瓶中，加入 8 mL 水、氢氧化钠 (0.26 g, 6.6 mmol) 后 80°C 反应 12h。反应结束后，反应液用二氯甲烷 30 mL 萃取三次，水相用 1N HCl 溶液调至 pH 到 2，反应析出白色固体，经过滤得到滤饼，干燥后得到 0.41g (1.6 mmol, 收率 73%) 化合物 733。

7、化合物 734 的合成



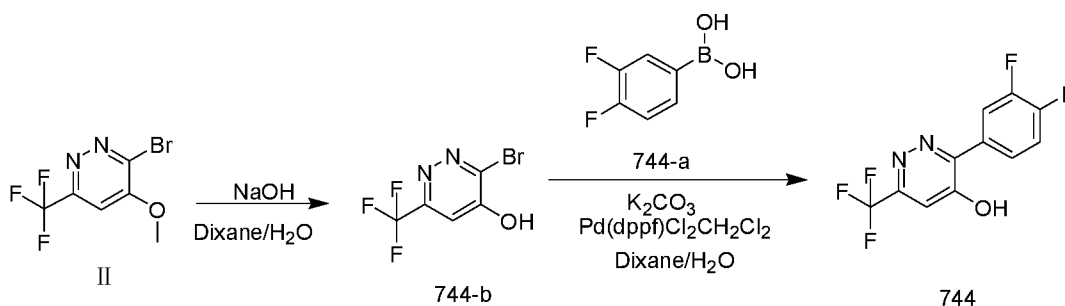
(1) 装置的构建: 50mL 圆底单口烧瓶, 磁力搅拌子, 恒温磁力搅拌器。

化合物 II (1g, 3.9 mmol), 化合物 734-a (1.0 g, 5.9 mmol), 碳酸铯 (3.81 g, 11.7 mmol) 置于圆底烧瓶中, 加入 1,4-二氧六环 (20 mL) / 水 (5 mL) 后置换氮气三次, 迅速加入 Pd(dppf)Cl₂CH₂Cl₂ (0.16 g) 后置换氮气三次, 然后反应液再次置换氮气三次, 最后 110°C 下反应 36 小时, 高效液相色谱检测反应结束后, 将反应体系浓缩, 柱层析分离, 得到 0.7 g (2.3 mmol, 收率 57%) 化合物 734-b (白色固体)。

(2) 装置的构建: 50mL 圆底单口烧瓶, 磁力搅拌子, 恒温磁力搅拌器, 球形冷凝管。

化合物 734-b (0.7 g, 2.3 mmol) 置于圆底烧瓶中, 加入 15 mL 水、氢氧化钠 (0.27 g, 6.9 mmol) 后 90 °C 反应 12h。反应结束后, 反应液用二氯甲烷 30 mL 萃取三次, 水相用 1N HCl 溶液调至 pH 到 2, 反应析出白色固体, 经过滤得到滤饼, 干燥后得到 0.41g (1.6 mmol, 收率 73%) 化合物 734。

8、化合物 744 的合成

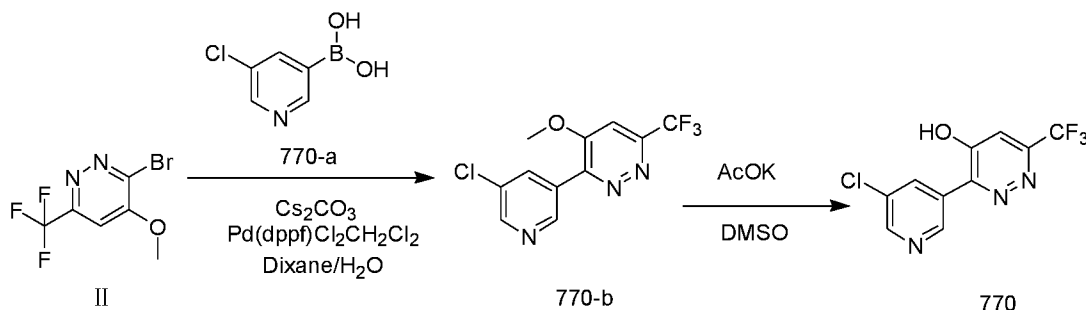


(1) 化合物 II (1 g, 3.9 mmol) 置于圆底烧瓶中, 加入二氧六环:H₂O= 3:1(10 mL), 氢氧化钠 (0.23 g, 5.8 mmol) 后 120 °C 反应 5 h。TLC 检测反应结束, 反应液旋蒸掉溶剂, 加水 20 mL, 然后用二氯甲烷 20 mL 萃取三次, 水相用 1N HCl 溶液调至 pH 到 2, 反应析出白色固体, 经过滤得到滤饼, 干燥后得到 0.6 g (2.5 mmol, 收率 65 %) 化合物 744-b。

(2) 将化合物 744-b (1g, 4.1 mmol), 化合物 744-a (0.96 g, 6.1 mmol), 碳酸钾 (1.69 g, 12.3 mmol) 置于圆底烧瓶中, 加入 1,4-二氧六环 (10 mL) / 水 (1 mL) 后置换氮气三次, 迅速加入 Pd(dppf)Cl₂CH₂Cl₂ (0.16 g) 后置换氮气三次, 然后反应液再次置换氮气三次, 最后于 110 °C 下反应 36 小时, HPLC 检测反应结束, 浓缩后加水 20mL, 用二氯甲烷 30 mL

萃取三次,水相用 1N HCl 溶液调至 pH 到 4,反应析出白色固体,经过滤得到滤饼,干燥后得到 0.51 g 化合物 744 (1.85 mmol, 收率 45%)。

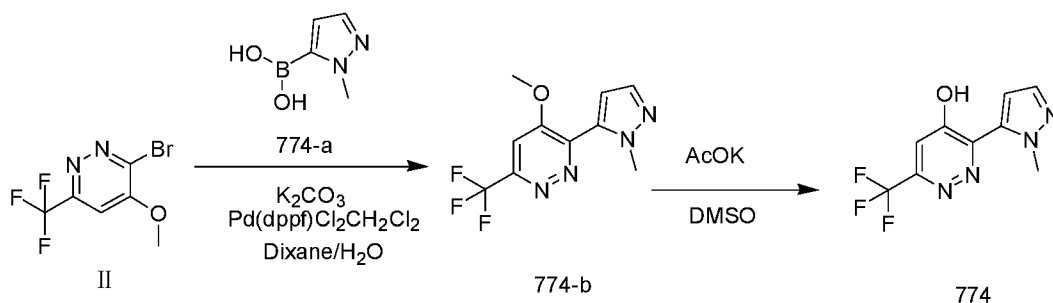
9、化合物 770 的合成



(1) 将化合物 II (1g, 3.9 mmol), 化合物 770-a (0.92 g, 5.9 mmol), 碳酸铯 (3.81 g, 11.7 mmol) 置于圆底烧瓶中, 加入 1,4-二氧六环 (10 mL) / 水 (1 mL) 后置换氮气三次, 迅速加入 Pd(dppf)Cl₂CH₂Cl₂ (0.16 g) 后置换氮气三次, 然后反应液再次置换氮气三次, 最后于 110°C 下反应 36 小时, HPLC 检测反应结束, 直接浓缩柱层析纯化(PE:EA=3:1), 得到 0.63 g (2.3 mmol, 收率 58.9 %) 化合物 770-b (白色固体)。

(2) 将化合物 770-b (0.63 g, 2.3 mmol) 置于圆底烧瓶中, 加入 AcOK (1.12 g, 11.5 mmol) 和 DMSO (6.3 mL) 后于 125 °C 反应 3 h。反应结束后, 降温, 反应液加入 20 mL 水, 用二氯甲烷 30 mL 萃取三次, 水相用 1N HCl 溶液调至 pH 到 6, 反应析出白色固体, 经过滤得到滤饼, 干燥后得到 0.41 g 化合物 770 (1.6 mmol, 收率 73%)。

10、化合物 774 的合成

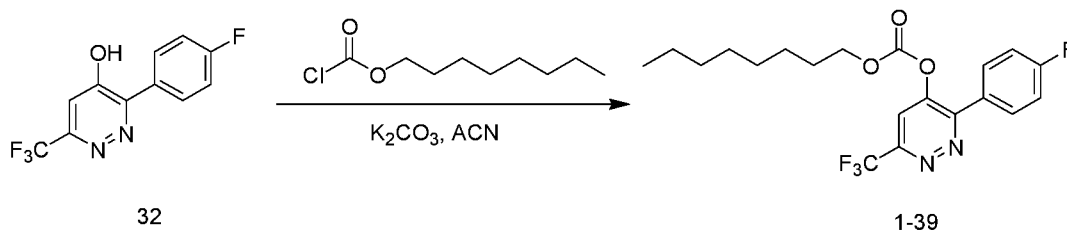


(1) 将化合物 II (1g, 3.9 mmol), 化合物 774-a (0.737 g, 5.9 mmol), 碳酸钾 (1.62 g, 11.7 mmol) 置于圆底烧瓶中, 加入 1,4-二氧六环 (10 mL) / 水 (1 mL) 后置换氮气三次, 迅速加入 Pd(dppf)Cl₂CH₂Cl₂ (0.16 g) 后置换氮气三次, 然后反应液再次置换氮气三次, 最后于 110 °C 下反应 36 小时, HPLC 检测反应结束, 浓缩柱层析纯化(PE:EA= 5:1), 得到 0.82 g (3.2 mmol, 收率 83%) 化合物 774-b (白色固体)。

(2) 将化合物 774-b 0.82 g (3.2 mmol) 置于圆底烧瓶中, 加入 AcOK (1.56 g, 16 mmol) 和 DMSO (8.3 mL) 后于 120 °C 反应 3 h。反应结束后, 降温, 反应液加入 20 mL 水, 用二氯甲

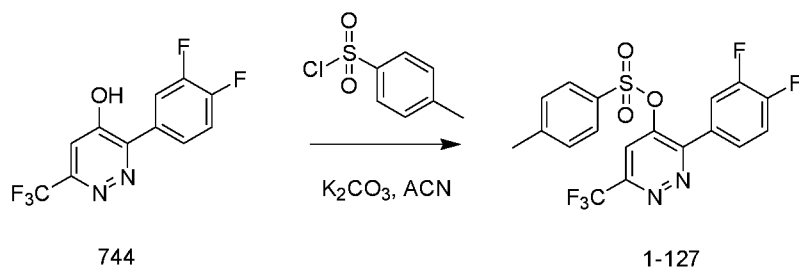
烷 30 mL 萃取三次, 水相用 1N HCl 溶液调至 pH 到 4, 反应析出白色固体, 经过滤得到滤饼, 干燥后得到 0.50 g 化合物 774 (2.08 mmol, 收率 65%)。

11、化合物 1-39 的合成



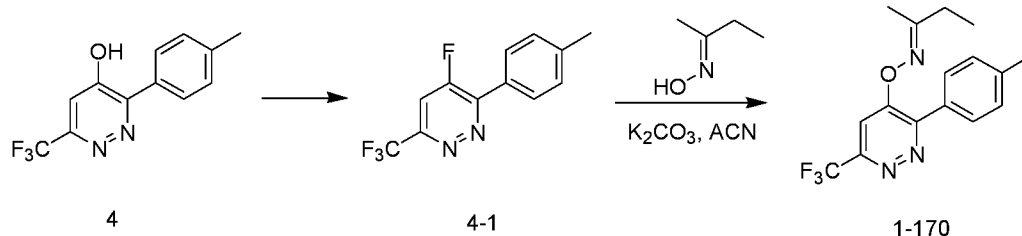
于室温下, 在一个 50mL 的单口茄形瓶中加入化合物 32 (1 当量)、 $\text{Cl}-\text{C}(=\text{O})-\text{O}-\text{C}_8\text{H}_{17}$ (1.1 当量)、碳酸钾 (1.5 当量) 和乙腈 (5 V, V 代表每克底物对应 1mL 乙腈, 下同), 控制温度 20℃, 搅拌 1h。TLC 检测反应已经完成, 将反应体系在旋转蒸发仪上除去乙腈, 加水-乙酸乙酯萃取, 残余物通过柱层析硅胶 (100 目到 200 目) 分离, 得到产物, 收率为 79%。

12、化合物 1-127 的合成

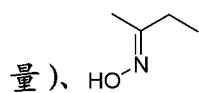


于室温下, 在一个 50mL 的单口茄形瓶中加入化合物 744 (1 当量)、 $\text{Cl}-\text{S}(=\text{O})_2-\text{C}_6\text{H}_4-\text{CH}_3$ (2 当量)、碳酸钾 (3 当量) 和乙腈 (10 V), 控制温度 80℃, 搅拌 12h。TLC 检测反应已经完成, 将反应体系在旋转蒸发仪上除去乙腈, 加水-乙酸乙酯萃取, 残余物通过柱层析硅胶 (100 目到 200 目) 分离, 得到产物, 收率为 83%。

13、化合物 1-170 的合成



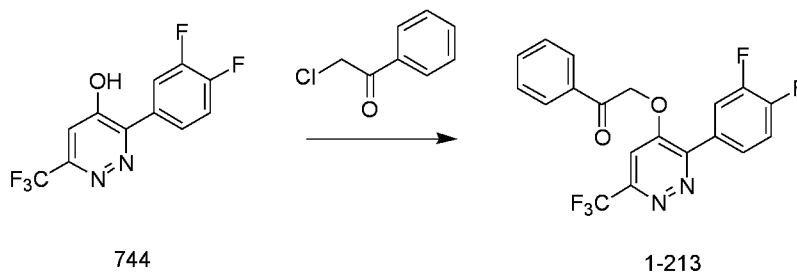
参照化合物 1 的合成方法, 制得化合物 4, 然后根据专利 WO2012142162A2 中公开的合成方法制得化合物 4-1。最后于室温下, 在一个 50mL 的单口茄形瓶中加入化合物 4-1 (1 当量)、 $\text{HO}-\text{N}(\text{C}_2\text{H}_5)_2$ (1.1 当量)、碳酸钾 (3 当量) 和乙腈 (10 V), 升温至 80℃, 搅拌 12h。TLC

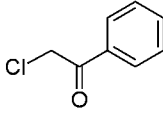


(1.1 当量)、碳酸钾 (3 当量) 和乙腈 (10 V), 升温至 80℃, 搅拌 12h。TLC

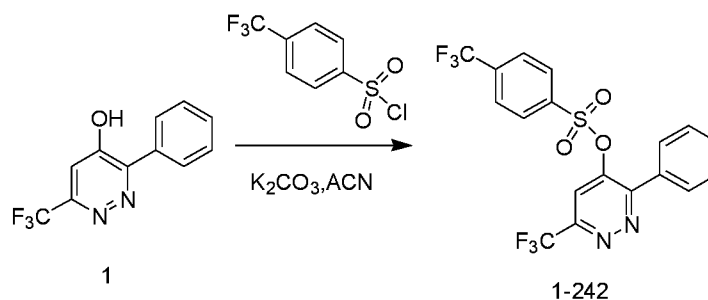
检测反应已经完成, 将反应体系在旋转蒸发仪上除去乙腈, 残余物通过柱层析硅胶 (100 目到 200 目) 分离, 得到产物, 收率为 68%。

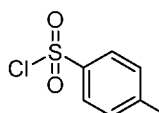
14、化合物 1-213 的合成



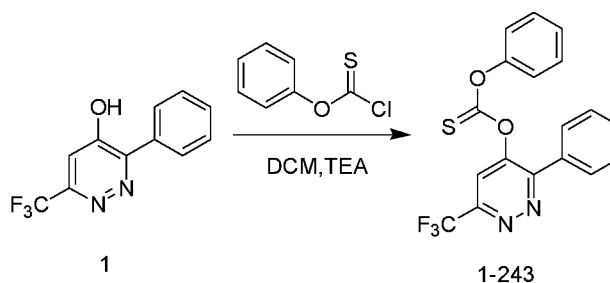
于室温下, 在一个 50mL 的单口茄形瓶中加入化合物 744 (1 当量)、 (1.5 当量)、三乙胺 (3 当量) 和二氯甲烷 (10 V), 控制温度 40℃, 搅拌 1h。TLC 检测反应已经完成, 将反应体系在旋转蒸发仪上除去二氯甲烷, 加水-乙酸乙酯萃取, 残余物通过柱层析硅胶 (100 目到 200 目) 分离, 得到产物, 收率为 72%。

15、化合物 1-242 的合成

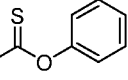


在 50mL 的单口茄形瓶中室温下加入化合物 1 (1 当量)、 (1.1 当量)、碳酸钾 (3 当量) 和乙腈 (10 V), 室温搅拌 30 分钟。TLC 检测反应已经完成, 反应体系通过减压蒸馏除去乙腈, 加水 (5V) 溶解后用乙酸乙酯萃取 (5V*3), 减压蒸馏去除乙酸乙酯, 残余物通过柱层析硅胶 (100 目到 200 目) 分离, 得到产物, 化合物 1-242 收率为 85%。

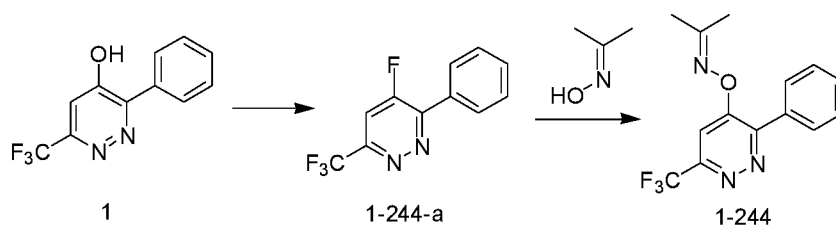
16、化合物 1-243 的合成



在 50mL 的单口茄形瓶中冰浴下加入化合物 1 (1 当量)、三乙胺 (3 当量) 和二氯甲烷

(5V), 冰浴下滴加  (1.2 当量), 然后室温搅拌 30 分钟。TLC 检测反应已经完成, 反应加水 (5V) 用二氯甲烷萃取 (5V*3), 减压蒸馏去除二氯甲烷, 残余物通过柱层析硅胶 (100 目到 200 目) 分离, 得到产物, 化合物 1-243 收率为 78%。

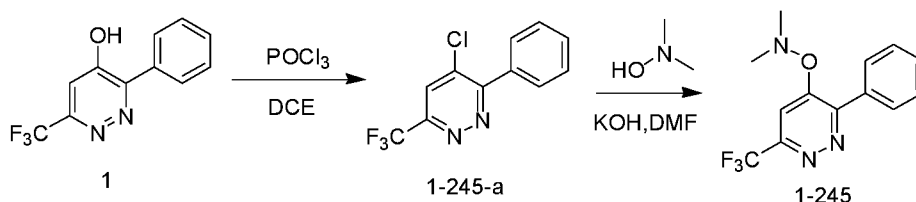
17、化合物 1-244 的合成



在 50mL 的单口茄形瓶中室温下加入化合物 1 (1 当量)、Phenofluor (1.5 当量)、氟化铯 (3 当量)、甲苯 (10 V), 升温至 80℃, 搅拌 18h。TLC 检测反应已经完成, 后处理的中间体化合物 1-244-a。在另外一个 50mL 的单口茄形瓶中室温下加入化合物 1-244-a (1 当量)、

 (1.2 当量)、碳酸钾 (3 当量) 和乙腈 (10 V), 升温至 80℃, 搅拌 18h。TLC 检测反应已经完成, 反应体系通过减压蒸馏除去乙腈, 加水 (5V) 溶解后用乙酸乙酯萃取 (5V*3), 减压蒸馏去除乙酸乙酯, 残余物通过柱层析硅胶 (100 目到 200 目) 分离, 得到产物, 化合物 1-244 收率为 69%。

18、化合物 1-245 的合成



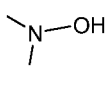
在 50mL 的单口茄形瓶中室温下加入化合物 1 (1 当量)、POCl₃ (1.5 当量)、1,2-二氯乙烷 (10 V)、5% N,N-二甲基甲酰胺, 升温至 80℃, 搅拌 6h。TLC 检测反应已经完成, 加水 (5V) 溶解后用 1, 2-二氯乙烷萃取 (5V*3), 减压蒸馏去除用 1,2-二氯乙烷, 得化合物 1-245-a。在另外一个 50mL 的单口茄形瓶中室温下加入化合物 1-245-a (1 当量)、 (1.2 当量)、氢氧化钾 (3 当量) 和 N,N-二甲基甲酰胺 (10 V), 升温至 100℃, 搅拌 18h。TLC 检测反应已经完成, 加水 (5V) 溶解后用乙酸乙酯萃取 (5V*3), 减压蒸馏去除乙酸乙酯, 残余物通过柱层析硅胶 (100 目到 200 目) 分离, 得到产物, 化合物 1-245 收率为 52%。

表 1 和表 2 中化合物可参照上述的方法制备得到。

生物活性评价:

有害植物破坏（即生长控制率）的活性级别标准如下：

10 级：完全死亡；

9 级：生长控制率在 90 % 以上；

8 级：生长控制率在 80 % 以上；

7 级：生长控制率在 70 % 以上；

6 级：生长控制率在 60 % 以上；

5 级：生长控制率在 50 % 以上；

4 级：生长控制率在 40 % 以上；

3 级：生长控制率在 30 % 以上；

2 级：生长控制率在 20 % 以上；

1 级：生长控制率低于 20 %；

0 级：无效果。

以上生长控制率为鲜重控制率。

苗后测试实验：将单子叶和双子叶杂草种子以及主要作物种子（小麦、玉米、水稻、大豆、棉花、油菜、谷子、高粱）放置在装有土壤的塑料盆中，然后覆盖 0.5-2 厘米土壤，使其在良好的温室环境中生长，播种 2-3 周后在 2-3 叶期处理测试植物，分别将供试的本发明化合物用丙酮溶解，然后加入吐温 80，用一定的水稀释成一定浓度的溶液，并添加 80% 植物油甲酯增效剂 1500 克/公顷，用喷雾塔喷施到植物上。施药后在温室中培养 3 周，3 周后杂草的实验效果列于表 3 和表 4。

表 3. 化合物 I 苗后杂草试验

化合物序号	反枝苋	稗菜	婆婆纳	藜	计量
1	10	10	10	8	2000 克/公顷
4	10	10	10	8	2000 克/公顷
8	10	10	10	8	2000 克/公顷
24	10	10	10	10	2000 克/公顷
26	10	10	10	10	1000 克/公顷
27	10	10	10	10	1000 克/公顷
28	10	10	10	10	1000 克/公顷
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1286	10	10	10	10	3000 克/公顷
1522	10	N	N	10	3000 克/公顷
1523	10	10	10	10	3000 克/公顷
1524	10	10	10	10	3000 克/公顷

注：N 为无数据。

表 4. 衍生化合物 I-1 苗后杂草试验

化合物序号	反枝苋	稗菜	婆婆纳	藜	计量
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1-7	10	10	10	10	3000 克/公顷
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1-29	10	10	10	10	3000 克/公顷
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1-69	10	10	10	10	3000 克/公顷
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1-71	10	10	10	10	3000 克/公顷
1-75	10	10	10	10	3000 克/公顷
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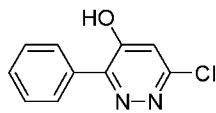
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1-211	10	10	10	10	3000 克/公顷
1-212	10	10	10	10	3000 克/公顷
1-213	10	10	10	10	3000 克/公顷
1-240	10	10	10	10	3000 克/公顷

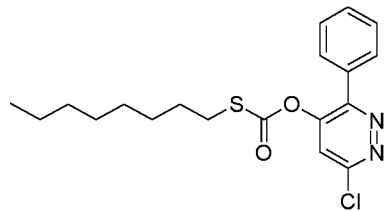
对比实验:

苗后测试条件同上, 实验结果如表 5 所示。

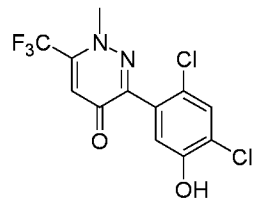
对照化合物 A:



对照化合物 B:

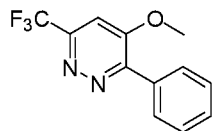


对照化合物 C:



(选自专利 CN106316962A)

对照化合物 D:



对照化合物 E:

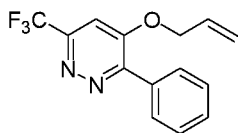


表 5. 对比实验结果

化合物	稗草	狗尾草	藜	蔊菜	猪殃殃	婆婆纳	计量
32	10	10	10	10	10	10	300 克/公顷
35	10	10	10	10	9	10	300 克/公顷
51	6	9	10	10	8	9	300 克/公顷
202	7	10	10	10	10	8	300 克/公顷
206	10	10	10	10	10	10	300 克/公顷
207	10	10	10	10	10	10	300 克/公顷
220	10	10	10	10	10	10	300 克/公顷
733	10	10	10	10	10	10	300 克/公顷
739	10	10	10	10	8	10	300 克/公顷
740	10	10	10	10	10	10	300 克/公顷
744	10	10	10	10	10	10	300 克/公顷
779	10	10	10	10	10	10	300 克/公顷
844	10	10	10	10	10	10	150 克/公顷
1000	10	10	10	10	10	10	300 克/公顷
1524	N	10	10	10	9	9	300 克/公顷
1-39	10	10	10	10	10	10	150 克/公顷

1-43	10	10	10	10	10	10	150 克/公顷
1-55	10	10	10	10	10	10	150 克/公顷
1-82	7	10	10	10	7	8	150 克/公顷
1-86	10	10	10	10	10	10	150 克/公顷
A	0	3	5	2	5	3	300 克/公顷
B	0	3	3	3	4	3	300 克/公顷
C	0	0	3	3	2	2	300 克/公顷
D	0	0	1	1	0	0	300 克/公顷
E	0	0	1	1	0	0	300 克/公顷

注：N 为无数据。

由上表可知，本发明的化合物与对照化合物相比，具有优异的除草活性。

另外，经过测试，本化合物苗前苗后施药对作物有良好的选择性，尤其是对小麦，水稻，大豆，棉花，玉米，高粱，谷子等作物。

苗前测试实验：

将单子叶和双子叶杂草种子以及主要作物种子（小麦、玉米、水稻、大豆、棉花、油菜、谷子、高粱）放置在装有土壤的塑料盆中，然后覆盖 0.5-2 厘米土壤，分别将供试的本发明化合物用丙酮溶解，然后加入吐温 80，用一定的水稀释成一定浓度的溶液，播种后立即喷施。施药后在温室中培养 4 周，3 周后观察实验结果，发现本发明的药剂多数在 250 克/公顷计量下效果出众，尤其对稗草、马唐、苘麻等杂草，且很多化合物对玉米、小麦、水稻、大豆、油菜有良好的选择性。

通过实验我们发现本发明所述化合物普遍具有较好的杂草防效，尤其对于玉米田、水稻田、小麦田广泛发生的杂草苘麻、鬼针草等主要的阔叶杂草有良好的效果，具备良好的商业价值。尤其是我们注意到对于 ALS 抑制剂有抗性的麦家公、猪殃殃、繁缕等阔叶杂草有极高的活性。

移栽水稻安全性评价与水田杂草防效评价：

在 1/1,000,000 公顷罐中装入水田土壤后，播种稗草、萤蔺、狼把草、野慈姑的种子，在其上轻轻地覆盖土。其后以蓄水深 0.5-1 厘米的状态静置于温室内，第二天或者 2 天后植入野慈姑的块茎。其后保持蓄水深 3-4 厘米，在稗草、萤蔺、狼把草达到 0.5 叶，野慈姑达到初生叶期的时间点，将按照通常的制剂方法调制本发明化合物而成的可湿性粉剂或者悬浮剂的水稀溶液，用吸液管进行均匀的滴下处理以达到规定的有效成分量。

另外，在 1/1,000,000 公顷罐中装入水田土壤后，进行平整，使蓄水深 3-4 厘米，第二天以移栽深度 3 厘米来移植 3 叶期的水稻（粳稻）。移植后第 5 天与上述同样地处理本发明化合

物。

分别用肉眼观察药剂处理后第 14 天稗草、萤蔺、狼把草及野慈姑的生育状态，药剂处理后第 21 天水稻的生育状态，以 1-10 的活性标准级别评价除草效果，试验发现很多本发明的化合物有优秀的活性和选择性，尤其对于野慈姑和稗草。注：稗草、萤蔺、野慈姑、狼把草种子均采集自中国黑龙江，经过检测对常规剂量的吡嘧磺隆有抗药性。

另外，本发明还涉及一种包含有效成分 (i) (如通式 I 所示的化合物) 与有效成分 (ii) 的除草组合物，部分组合物列举如下：

1 (表 1 所示化合物序号，下同) + 磺草酮、1+硝磺草酮、1+苯唑草酮、1+环磺酮、1+氟吡草酮、1+呋喃磺草酮、1+双环磺草酮、1+lancotrione、1+双唑草酮、1+环吡氟草酮、1+三唑磺草酮、1+苯唑氟草酮、1+磺酰草吡唑、1+吡唑特、1+吡草酮、1+tolpyralate、1+fenquitrione、1+异噁唑草酮、1+氯氟吡氧乙酸或其酯、1+氟氯吡啶酯、1+氯氟吡啶酯、1+二氯喹啉酸、1+氯甲喹啉酸、1+2 甲 4 氯或其盐/酯、1+2-甲基-4-氯苯氧丙酸或其盐/酯、1+MCPB 或其盐/酯、1+2,4-D 或其盐/酯、1+2,4-滴丙酸或其盐/酯、1+2,4-DB 或其盐/酯、1+麦草畏、1+氯氟吡啶酸、1+三氯吡氧乙酸、1+二氯吡啶酸、1+绿草定、1+氟咯草酮、1+呋草酮、1+吡氟酰草胺、1+氟吡酰草胺、1+氟丁酰草胺、1+氟草敏、1+氟啶草酮。

2+磺草酮、2+硝磺草酮、2+苯唑草酮、2+环磺酮、2+氟吡草酮、2+呋喃磺草酮、2+双环磺草酮、2+lancotrione、2+双唑草酮、2+环吡氟草酮、2+三唑磺草酮、2+苯唑氟草酮、2+磺酰草吡唑、2+吡唑特、2+吡草酮、2+tolpyralate、2+fenquitrione、2+异噁唑草酮、2+氯氟吡氧乙酸或其酯、2+氟氯吡啶酯、2+氯氟吡啶酯、2+二氯喹啉酸、2+氯甲喹啉酸、2+2 甲 4 氯或其盐/酯、2+2-甲基-4-氯苯氧丙酸或其盐/酯、2+MCPB 或其盐/酯、2+2,4-D 或其盐/酯、2+2,4-滴丙酸或其盐/酯、2+2,4-DB 或其盐/酯、2+麦草畏、2+氯氟吡啶酸、2+三氯吡氧乙酸、2+二氯吡啶酸、2+绿草定、2+氟咯草酮、2+呋草酮、2+吡氟酰草胺、2+氟吡酰草胺、2+氟丁酰草胺、2+氟草敏、2+氟啶草酮。

3+磺草酮、3+硝磺草酮、3+苯唑草酮、3+环磺酮、3+氟吡草酮、3+呋喃磺草酮、3+双环磺草酮、3+lancotrione、3+双唑草酮、3+环吡氟草酮、3+三唑磺草酮、3+苯唑氟草酮、3+磺酰草吡唑、3+吡唑特、3+吡草酮、3+tolpyralate、3+fenquitrione、3+异噁唑草酮、3+氯氟吡氧乙酸或其酯、3+氟氯吡啶酯、3+氯氟吡啶酯、3+二氯喹啉酸、3+氯甲喹啉酸、3+2 甲 4 氯或其盐/酯、3+2-甲基-4-氯苯氧丙酸或其盐/酯、3+MCPB 或其盐/酯、3+2,4-D 或其盐/酯、3+2,4-滴丙酸或其盐/酯、3+2,4-DB 或其盐/酯、3+麦草畏、3+氯氟吡啶酸、3+三氯吡氧乙酸、3+二氯吡啶酸、3+绿草定、3+氟咯草酮、3+呋草酮、3+吡氟酰草胺、3+氟吡酰草胺、3+氟丁酰草胺、3+氟草敏、3+氟啶草酮。

4+磺草酮、4+硝磺草酮、4+苯唑草酮、4+环磺酮、4+氟吡草酮、4+呋喃磺草酮、4+双环磺草酮、4+lancotrione、4+双唑草酮、4+环吡氟草酮、4+三唑磺草酮、4+苯唑氟草酮、4+磺酰草吡唑、4+吡唑特、4+吡草酮、4+tolpyralate、4+fenquinotrione、4+异噁唑草酮、4+氯氟吡氧乙酸或其酯、4+氟氯吡啶酯、4+氯氟吡啶酯、4+二氯喹啉酸、4+氯甲喹啉酸、4+2 甲 4 氯或其盐/酯、4+2-甲基-4-氯苯氧丙酸或其盐/酯、4+MCPB 或其盐/酯、4+2,4-D 或其盐/酯、4+2,4-滴丙酸或其盐/酯、4+2,4-DB 或其盐/酯、4+麦草畏、4+氨基吡啶酸、4+三氯吡氧乙酸、4+二氯吡啶酸、4+绿草定、4+氟咯草酮、4+呋草酮、4+吡氟酰草胺、4+氟吡酰草胺、4+氟丁酰草胺、4+氟草敏、4+氟啶草酮。

7+磺草酮、7+硝磺草酮、7+苯唑草酮、7+环磺酮、7+氟吡草酮、7+呋喃磺草酮、7+双环磺草酮、7+lancotrione、7+双唑草酮、7+环吡氟草酮、7+三唑磺草酮、7+苯唑氟草酮、7+磺酰草吡唑、7+吡唑特、7+吡草酮、7+tolpyralate、7+fenquinotrione、7+异噁唑草酮、7+氯氟吡氧乙酸或其酯、7+氟氯吡啶酯、7+氯氟吡啶酯、7+二氯喹啉酸、7+氯甲喹啉酸、7+2 甲 4 氯或其盐/酯、7+2-甲基-4-氯苯氧丙酸或其盐/酯、7+MCPB 或其盐/酯、7+2,4-D 或其盐/酯、7+2,4-滴丙酸或其盐/酯、7+2,4-DB 或其盐/酯、7+麦草畏、7+氨基吡啶酸、7+三氯吡氧乙酸、7+二氯吡啶酸、7+绿草定、7+氟咯草酮、7+呋草酮、7+吡氟酰草胺、7+氟吡酰草胺、7+氟丁酰草胺、7+氟草敏、7+氟啶草酮。

8+磺草酮、8+硝磺草酮、8+苯唑草酮、8+环磺酮、8+氟吡草酮、8+呋喃磺草酮、8+双环磺草酮、8+lancotrione、8+双唑草酮、8+环吡氟草酮、8+三唑磺草酮、8+苯唑氟草酮、8+磺酰草吡唑、8+吡唑特、8+吡草酮、8+tolpyralate、8+fenquinotrione、8+异噁唑草酮、8+氯氟吡氧乙酸或其酯、8+氟氯吡啶酯、8+氯氟吡啶酯、8+二氯喹啉酸、8+氯甲喹啉酸、8+2 甲 4 氯或其盐/酯、8+2-甲基-4-氯苯氧丙酸或其盐/酯、8+MCPB 或其盐/酯、8+2,4-D 或其盐/酯、8+2,4-滴丙酸或其盐/酯、8+2,4-DB 或其盐/酯、8+麦草畏、8+氨基吡啶酸、8+三氯吡氧乙酸、8+二氯吡啶酸、8+绿草定、8+氟咯草酮、8+呋草酮、8+吡氟酰草胺、8+氟吡酰草胺、8+氟丁酰草胺、8+氟草敏、8+氟啶草酮。

22+磺草酮、22+硝磺草酮、22+苯唑草酮、22+环磺酮、22+氟吡草酮、22+呋喃磺草酮、22+双环磺草酮、22+lancotrione、22+双唑草酮、22+环吡氟草酮、22+三唑磺草酮、22+苯唑氟草酮、22+磺酰草吡唑、22+吡唑特、22+吡草酮、22+tolpyralate、22+fenquinotrione、22+异噁唑草酮、22+氯氟吡氧乙酸或其酯、22+氟氯吡啶酯、22+氯氟吡啶酯、22+二氯喹啉酸、22+氯甲喹啉酸、22+2 甲 4 氯或其盐/酯、22+2-甲基-4-氯苯氧丙酸或其盐/酯、22+MCPB 或其盐/酯、22+2,4-D 或其盐/酯、22+2,4-滴丙酸或其盐/酯、22+2,4-DB 或其盐/酯、22+麦草畏、22+氨基吡啶酸、22+三氯吡氧乙酸、22+二氯吡啶酸、22+绿草定、22+氟咯草酮、22+呋草酮、

22+吡氟酰草胺、22+氟吡酰草胺、22+氟丁酰草胺、22+氟草敏、22+氟啶草酮。

26+磺草酮、26+硝磺草酮、26+苯唑草酮、26+环磺酮、26+氟吡草酮、26+呋喃磺草酮、26+双环磺草酮、26+lancotrione、26+双唑草酮、26+环吡氟草酮、26+三唑磺草酮、26+苯唑氟草酮、26+磺酰草吡唑、26+吡唑特、26+吡草酮、26+tolpyralate、26+fenquinotrione、26+异噁唑草酮、26+氯氟吡氧乙酸或其酯、26+氟氯吡啶酯、26+氯氟吡啶酯、26+二氯喹啉酸、26+氯甲喹啉酸、26+2 甲 4 氯或其盐/酯、26+2-甲基-4-氯苯氧丙酸或其盐/酯、26+MCPB 或其盐/酯、26+2,4-D 或其盐/酯、26+2,4-滴丙酸或其盐/酯、26+2,4-DB 或其盐/酯、26+麦草畏、26+氨基吡啶酸、26+三氯吡氧乙酸、26+二氯吡啶酸、26+绿草定、26+氟咯草酮、26+呋草酮、26+吡氟酰草胺、26+氟吡酰草胺、26+氟丁酰草胺、26+氟草敏、26+氟啶草酮。

27+磺草酮、27+硝磺草酮、27+苯唑草酮、27+环磺酮、27+氟吡草酮、27+呋喃磺草酮、27+双环磺草酮、27+lancotrione、27+双唑草酮、27+环吡氟草酮、27+三唑磺草酮、27+苯唑氟草酮、27+磺酰草吡唑、27+吡唑特、27+吡草酮、27+tolpyralate、27+fenquinotrione、27+异噁唑草酮、27+氯氟吡氧乙酸或其酯、27+氟氯吡啶酯、27+氯氟吡啶酯、27+二氯喹啉酸、27+氯甲喹啉酸、27+2 甲 4 氯或其盐/酯、27+2-甲基-4-氯苯氧丙酸或其盐/酯、27+MCPB 或其盐/酯、27+2,4-D 或其盐/酯、27+2,4-滴丙酸或其盐/酯、27+2,4-DB 或其盐/酯、27+麦草畏、27+氨基吡啶酸、27+三氯吡氧乙酸、27+二氯吡啶酸、27+绿草定、27+氟咯草酮、27+呋草酮、27+吡氟酰草胺、27+氟吡酰草胺、27+氟丁酰草胺、27+氟草敏、27+氟啶草酮。

32+磺草酮、32+硝磺草酮、32+苯唑草酮、32+环磺酮、32+氟吡草酮、32+呋喃磺草酮、32+双环磺草酮、32+lancotrione、32+双唑草酮、32+环吡氟草酮、32+三唑磺草酮、32+苯唑氟草酮、32+磺酰草吡唑、32+吡唑特、32+吡草酮、32+tolpyralate、32+fenquinotrione、32+异噁唑草酮、32+氯氟吡氧乙酸或其酯、32+氟氯吡啶酯、32+氯氟吡啶酯、32+二氯喹啉酸、32+氯甲喹啉酸、32+2 甲 4 氯或其盐/酯、32+2-甲基-4-氯苯氧丙酸或其盐/酯、32+MCPB 或其盐/酯、32+2,4-D 或其盐/酯、32+2,4-滴丙酸或其盐/酯、32+2,4-DB 或其盐/酯、32+麦草畏、32+氨基吡啶酸、32+三氯吡氧乙酸、32+二氯吡啶酸、32+绿草定、32+氟咯草酮、32+呋草酮、32+吡氟酰草胺、32+氟吡酰草胺、32+氟丁酰草胺、32+氟草敏、32+氟啶草酮。

34+磺草酮、34+硝磺草酮、34+苯唑草酮、34+环磺酮、34+氟吡草酮、34+呋喃磺草酮、34+双环磺草酮、34+lancotrione、34+双唑草酮、34+环吡氟草酮、34+三唑磺草酮、34+苯唑氟草酮、34+磺酰草吡唑、34+吡唑特、34+吡草酮、34+tolpyralate、34+fenquinotrione、34+异噁唑草酮、34+氯氟吡氧乙酸或其酯、34+氟氯吡啶酯、34+氯氟吡啶酯、34+二氯喹啉酸、34+氯甲喹啉酸、34+2 甲 4 氯或其盐/酯、34+2-甲基-4-氯苯氧丙酸或其盐/酯、34+MCPB 或其盐/酯、34+2,4-D 或其盐/酯、34+2,4-滴丙酸或其盐/酯、34+2,4-DB 或其盐/酯、34+麦草畏、

34+氨基吡啶酸、34+三氯吡氧乙酸、34+二氯吡啶酸、34+绿草定、34+氟咯草酮、34+呋草酮、34+吡氟酰草胺、34+氟吡酰草胺、34+氟丁酰草胺、34+氟草敏、34+氟啶草酮。

35+磺草酮、35+硝磺草酮、35+苯唑草酮、35+环磺酮、35+氟吡草酮、35+呋喃磺草酮、35+双环磺草酮、35+lancotrione、35+双唑草酮、35+环吡氟草酮、35+三唑磺草酮、35+苯唑氟草酮、35+磺酰草吡唑、35+吡唑特、35+吡草酮、35+tolpyralate、35+fenquinotrione、35+异噁唑草酮、35+氯氟吡氧乙酸或其酯、35+氯氟吡啶酯、35+氯氟吡啶酯、35+二氯喹啉酸、35+氯甲喹啉酸、35+2 甲 4 氯或其盐/酯、35+2-甲基-4-氯苯氧丙酸或其盐/酯、35+MCPB 或其盐/酯、35+2,4-D 或其盐/酯、35+2,4-滴丙酸或其盐/酯、35+2,4-DB 或其盐/酯、35+麦草畏、35+氨基吡啶酸、35+三氯吡氧乙酸、35+二氯吡啶酸、35+绿草定、35+氟咯草酮、35+呋草酮、35+吡氟酰草胺、35+氟吡酰草胺、35+氟丁酰草胺、35+氟草敏、35+氟啶草酮。

37+磺草酮、37+硝磺草酮、37+苯唑草酮、37+环磺酮、37+氟吡草酮、37+呋喃磺草酮、37+双环磺草酮、37+lancotrione、37+双唑草酮、37+环吡氟草酮、37+三唑磺草酮、37+苯唑氟草酮、37+磺酰草吡唑、37+吡唑特、37+吡草酮、37+tolpyralate、37+fenquinotrione、37+异噁唑草酮、37+氯氟吡氧乙酸或其酯、37+氯氟吡啶酯、37+氯氟吡啶酯、37+二氯喹啉酸、37+氯甲喹啉酸、37+2 甲 4 氯或其盐/酯、37+2-甲基-4-氯苯氧丙酸或其盐/酯、37+MCPB 或其盐/酯、37+2,4-D 或其盐/酯、37+2,4-滴丙酸或其盐/酯、37+2,4-DB 或其盐/酯、37+麦草畏、37+氨基吡啶酸、37+三氯吡氧乙酸、37+二氯吡啶酸、37+绿草定、37+氟咯草酮、37+呋草酮、37+吡氟酰草胺、37+氟吡酰草胺、37+氟丁酰草胺、37+氟草敏、37+氟啶草酮。

38+磺草酮、38+硝磺草酮、38+苯唑草酮、38+环磺酮、38+氟吡草酮、38+呋喃磺草酮、38+双环磺草酮、38+lancotrione、38+双唑草酮、38+环吡氟草酮、38+三唑磺草酮、38+苯唑氟草酮、38+磺酰草吡唑、38+吡唑特、38+吡草酮、38+tolpyralate、38+fenquinotrione、38+异噁唑草酮、38+氯氟吡氧乙酸或其酯、38+氯氟吡啶酯、38+氯氟吡啶酯、38+二氯喹啉酸、38+氯甲喹啉酸、38+2 甲 4 氯或其盐/酯、38+2-甲基-4-氯苯氧丙酸或其盐/酯、38+MCPB 或其盐/酯、38+2,4-D 或其盐/酯、38+2,4-滴丙酸或其盐/酯、38+2,4-DB 或其盐/酯、38+麦草畏、38+氨基吡啶酸、38+三氯吡氧乙酸、38+二氯吡啶酸、38+绿草定、38+氟咯草酮、38+呋草酮、38+吡氟酰草胺、38+氟吡酰草胺、38+氟丁酰草胺、38+氟草敏、38+氟啶草酮。

39+磺草酮、39+硝磺草酮、39+苯唑草酮、39+环磺酮、39+氟吡草酮、39+呋喃磺草酮、39+双环磺草酮、39+lancotrione、39+双唑草酮、39+环吡氟草酮、39+三唑磺草酮、39+苯唑氟草酮、39+磺酰草吡唑、39+吡唑特、39+吡草酮、39+tolpyralate、39+fenquinotrione、39+异噁唑草酮、39+氯氟吡氧乙酸或其酯、39+氯氟吡啶酯、39+氯氟吡啶酯、39+二氯喹啉酸、39+氯甲喹啉酸、39+2 甲 4 氯或其盐/酯、39+2-甲基-4-氯苯氧丙酸或其盐/酯、39+MCPB 或

其盐/酯、39+2,4-D 或其盐/酯、39+2,4-滴丙酸或其盐/酯、39+2,4-DB 或其盐/酯、39+麦草畏、39+氯氟吡啶酸、39+三氯吡氧乙酸、39+二氯吡啶酸、39+绿草定、39+氟咯草酮、39+吡草酮、39+吡氟酰草胺、39+氟吡酰草胺、39+氟丁酰草胺、39+氟草敏、39+氟啶草酮。

40+磺草酮、40+硝磺草酮、40+苯唑草酮、40+环磺酮、40+氟吡草酮、40+吡喃磺草酮、40+双环磺草酮、40+lancotrione、40+双唑草酮、40+环吡氟草酮、40+三唑磺草酮、40+苯唑氟草酮、40+磺酰草吡唑、40+吡唑特、40+吡草酮、40+tolpyralate、40+fenquitrione、40+异噁唑草酮、40+氯氟吡氧乙酸或其酯、40+氯氟吡啶酯、40+氯氟吡啶酯、40+二氯喹啉酸、40+氯甲喹啉酸、40+2 甲 4 氯或其盐/酯、40+2-甲基-4-氯苯氧丙酸或其盐/酯、40+MCPB 或其盐/酯、40+2,4-D 或其盐/酯、40+2,4-滴丙酸或其盐/酯、40+2,4-DB 或其盐/酯、40+麦草畏、40+氯氟吡啶酸、40+三氯吡氧乙酸、40+二氯吡啶酸、40+绿草定、40+氟咯草酮、40+吡草酮、40+吡氟酰草胺、40+氟吡酰草胺、40+氟丁酰草胺、40+氟草敏、40+氟啶草酮。

42+磺草酮、42+硝磺草酮、42+苯唑草酮、42+环磺酮、42+氟吡草酮、42+吡喃磺草酮、42+双环磺草酮、42+lancotrione、42+双唑草酮、42+环吡氟草酮、42+三唑磺草酮、42+苯唑氟草酮、42+磺酰草吡唑、42+吡唑特、42+吡草酮、42+tolpyralate、42+fenquitrione、42+异噁唑草酮、42+氯氟吡氧乙酸或其酯、42+氯氟吡啶酯、42+氯氟吡啶酯、42+二氯喹啉酸、42+氯甲喹啉酸、42+2 甲 4 氯或其盐/酯、42+2-甲基-4-氯苯氧丙酸或其盐/酯、42+MCPB 或其盐/酯、42+2,4-D 或其盐/酯、42+2,4-滴丙酸或其盐/酯、42+2,4-DB 或其盐/酯、42+麦草畏、42+氯氟吡啶酸、42+三氯吡氧乙酸、42+二氯吡啶酸、42+绿草定、42+氟咯草酮、42+吡草酮、42+吡氟酰草胺、42+氟吡酰草胺、42+氟丁酰草胺、42+氟草敏、42+氟啶草酮。

43+磺草酮、43+硝磺草酮、43+苯唑草酮、43+环磺酮、43+氟吡草酮、43+吡喃磺草酮、43+双环磺草酮、43+lancotrione、43+双唑草酮、43+环吡氟草酮、43+三唑磺草酮、43+苯唑氟草酮、43+磺酰草吡唑、43+吡唑特、43+吡草酮、43+tolpyralate、43+fenquitrione、43+异噁唑草酮、43+氯氟吡氧乙酸或其酯、43+氯氟吡啶酯、43+氯氟吡啶酯、43+二氯喹啉酸、43+氯甲喹啉酸、43+2 甲 4 氯或其盐/酯、43+2-甲基-4-氯苯氧丙酸或其盐/酯、43+MCPB 或其盐/酯、43+2,4-D 或其盐/酯、43+2,4-滴丙酸或其盐/酯、43+2,4-DB 或其盐/酯、43+麦草畏、43+氯氟吡啶酸、43+三氯吡氧乙酸、43+二氯吡啶酸、43+绿草定、43+氟咯草酮、43+吡草酮、43+吡氟酰草胺、43+氟吡酰草胺、43+氟丁酰草胺、43+氟草敏、43+氟啶草酮。

44+磺草酮、44+硝磺草酮、44+苯唑草酮、44+环磺酮、44+氟吡草酮、44+吡喃磺草酮、44+双环磺草酮、44+lancotrione、44+双唑草酮、44+环吡氟草酮、44+三唑磺草酮、44+苯唑氟草酮、44+磺酰草吡唑、44+吡唑特、44+吡草酮、44+tolpyralate、44+fenquitrione、44+异噁唑草酮、44+氯氟吡氧乙酸或其酯、44+氯氟吡啶酯、44+氯氟吡啶酯、44+二氯喹啉酸、

44+氯甲喹啉酸、44+2 甲 4 氯或其盐/酯、44+2-甲基-4-氯苯氧丙酸或其盐/酯、44+MCPB 或其盐/酯、44+2,4-D 或其盐/酯、44+2,4-滴丙酸或其盐/酯、44+2,4-DB 或其盐/酯、44+麦草畏、44+氯氟吡啶酸、44+三氯吡氧乙酸、44+二氯吡啶酸、44+绿草定、44+氟咯草酮、44+吡草酮、44+吡氟酰草胺、44+氟吡酰草胺、44+氟丁酰草胺、44+氟草敏、44+氟啶草酮。

50+磺草酮、50+硝磺草酮、50+苯唑草酮、50+环磺酮、50+氟吡草酮、50+吡喃磺草酮、50+双环磺草酮、50+lancotrione、50+双唑草酮、50+环吡氟草酮、50+三唑磺草酮、50+苯唑氟草酮、50+磺酰草吡唑、50+吡唑特、50+吡草酮、50+tolpyralate、50+fenquitrione、50+异噁唑草酮、50+氯氟吡氧乙酸或其酯、50+氟氯吡啶酯、50+氯氟吡啶酯、50+二氯喹啉酸、50+氯甲喹啉酸、50+2 甲 4 氯或其盐/酯、50+2-甲基-4-氯苯氧丙酸或其盐/酯、50+MCPB 或其盐/酯、50+2,4-D 或其盐/酯、50+2,4-滴丙酸或其盐/酯、50+2,4-DB 或其盐/酯、50+麦草畏、50+氯氟吡啶酸、50+三氯吡氧乙酸、50+二氯吡啶酸、50+绿草定、50+氟咯草酮、50+吡草酮、50+吡氟酰草胺、50+氟吡酰草胺、50+氟丁酰草胺、50+氟草敏、50+氟啶草酮。

51+磺草酮、51+硝磺草酮、51+苯唑草酮、51+环磺酮、51+氟吡草酮、51+吡喃磺草酮、51+双环磺草酮、51+lancotrione、51+双唑草酮、51+环吡氟草酮、51+三唑磺草酮、51+苯唑氟草酮、51+磺酰草吡唑、51+吡唑特、51+吡草酮、51+tolpyralate、51+fenquitrione、51+异噁唑草酮、51+氯氟吡氧乙酸或其酯、51+氟氯吡啶酯、51+氯氟吡啶酯、51+二氯喹啉酸、51+氯甲喹啉酸、51+2 甲 4 氯或其盐/酯、51+2-甲基-4-氯苯氧丙酸或其盐/酯、51+MCPB 或其盐/酯、51+2,4-D 或其盐/酯、51+2,4-滴丙酸或其盐/酯、51+2,4-DB 或其盐/酯、51+麦草畏、51+氯氟吡啶酸、51+三氯吡氧乙酸、51+二氯吡啶酸、51+绿草定、51+氟咯草酮、51+吡草酮、51+吡氟酰草胺、51+氟吡酰草胺、51+氟丁酰草胺、51+氟草敏、51+氟啶草酮。

53+磺草酮、53+硝磺草酮、53+苯唑草酮、53+环磺酮、53+氟吡草酮、53+吡喃磺草酮、53+双环磺草酮、53+lancotrione、53+双唑草酮、53+环吡氟草酮、53+三唑磺草酮、53+苯唑氟草酮、53+磺酰草吡唑、53+吡唑特、53+吡草酮、53+tolpyralate、53+fenquitrione、53+异噁唑草酮、53+氯氟吡氧乙酸或其酯、53+氟氯吡啶酯、53+氯氟吡啶酯、53+二氯喹啉酸、53+氯甲喹啉酸、53+2 甲 4 氯或其盐/酯、53+2-甲基-4-氯苯氧丙酸或其盐/酯、53+MCPB 或其盐/酯、53+2,4-D 或其盐/酯、53+2,4-滴丙酸或其盐/酯、53+2,4-DB 或其盐/酯、53+麦草畏、53+氯氟吡啶酸、53+三氯吡氧乙酸、53+二氯吡啶酸、53+绿草定、53+氟咯草酮、53+吡草酮、53+吡氟酰草胺、53+氟吡酰草胺、53+氟丁酰草胺、53+氟草敏、53+氟啶草酮。

56+磺草酮、56+硝磺草酮、56+苯唑草酮、56+环磺酮、56+氟吡草酮、56+吡喃磺草酮、56+双环磺草酮、56+lancotrione、56+双唑草酮、56+环吡氟草酮、56+三唑磺草酮、56+苯唑氟草酮、56+磺酰草吡唑、56+吡唑特、56+吡草酮、56+tolpyralate、56+fenquitrione、56+

异噁唑草酮、56+氯氟吡氧乙酸或其酯、56+氟氯吡啶酯、56+氯氟吡啶酯、56+二氯喹啉酸、56+氯甲喹啉酸、56+2 甲 4 氯或其盐/酯、56+2-甲基-4-氯苯氧丙酸或其盐/酯、56+MCPB 或其盐/酯、56+2,4-D 或其盐/酯、56+2,4-滴丙酸或其盐/酯、56+2,4-DB 或其盐/酯、56+麦草畏、56+氨基吡啶酸、56+三氯吡氧乙酸、56+二氯吡啶酸、56+绿草定、56+氟咯草酮、56+吡草酮、56+吡氟酰草胺、56+氟吡酰草胺、56+氟丁酰草胺、56+氟草敏、56+氟啶草酮。

57+磺草酮、57+硝磺草酮、57+苯唑草酮、57+环磺酮、57+氟吡草酮、57+吡喃磺草酮、57+双环磺草酮、57+lancotrione、57+双唑草酮、57+环吡氟草酮、57+三唑磺草酮、57+苯唑氟草酮、57+磺酰草吡唑、57+吡唑特、57+吡草酮、57+tolpyralate、57+fenquitrione、57+异噁唑草酮、57+氯氟吡氧乙酸或其酯、57+氟氯吡啶酯、57+氯氟吡啶酯、57+二氯喹啉酸、57+氯甲喹啉酸、57+2 甲 4 氯或其盐/酯、57+2-甲基-4-氯苯氧丙酸或其盐/酯、57+MCPB 或其盐/酯、57+2,4-D 或其盐/酯、57+2,4-滴丙酸或其盐/酯、57+2,4-DB 或其盐/酯、57+麦草畏、57+氨基吡啶酸、57+三氯吡氧乙酸、57+二氯吡啶酸、57+绿草定、57+氟咯草酮、57+吡草酮、57+吡氟酰草胺、57+氟吡酰草胺、57+氟丁酰草胺、57+氟草敏、57+氟啶草酮。

58+磺草酮、58+硝磺草酮、58+苯唑草酮、58+环磺酮、58+氟吡草酮、58+吡喃磺草酮、58+双环磺草酮、58+lancotrione、58+双唑草酮、58+环吡氟草酮、58+三唑磺草酮、58+苯唑氟草酮、58+磺酰草吡唑、58+吡唑特、58+吡草酮、58+tolpyralate、58+fenquitrione、58+异噁唑草酮、58+氯氟吡氧乙酸或其酯、58+氟氯吡啶酯、58+氯氟吡啶酯、58+二氯喹啉酸、58+氯甲喹啉酸、58+2 甲 4 氯或其盐/酯、58+2-甲基-4-氯苯氧丙酸或其盐/酯、58+MCPB 或其盐/酯、58+2,4-D 或其盐/酯、58+2,4-滴丙酸或其盐/酯、58+2,4-DB 或其盐/酯、58+麦草畏、58+氨基吡啶酸、58+三氯吡氧乙酸、58+二氯吡啶酸、58+绿草定、58+氟咯草酮、58+吡草酮、58+吡氟酰草胺、58+氟吡酰草胺、58+氟丁酰草胺、58+氟草敏、58+氟啶草酮。

59+磺草酮、59+硝磺草酮、59+苯唑草酮、59+环磺酮、59+氟吡草酮、59+吡喃磺草酮、59+双环磺草酮、59+lancotrione、59+双唑草酮、59+环吡氟草酮、59+三唑磺草酮、59+苯唑氟草酮、59+磺酰草吡唑、59+吡唑特、59+吡草酮、59+tolpyralate、59+fenquitrione、59+异噁唑草酮、59+氯氟吡氧乙酸或其酯、59+氟氯吡啶酯、59+氯氟吡啶酯、59+二氯喹啉酸、59+氯甲喹啉酸、59+2 甲 4 氯或其盐/酯、59+2-甲基-4-氯苯氧丙酸或其盐/酯、59+MCPB 或其盐/酯、59+2,4-D 或其盐/酯、59+2,4-滴丙酸或其盐/酯、59+2,4-DB 或其盐/酯、59+麦草畏、59+氨基吡啶酸、59+三氯吡氧乙酸、59+二氯吡啶酸、59+绿草定、59+氟咯草酮、59+吡草酮、59+吡氟酰草胺、59+氟吡酰草胺、59+氟丁酰草胺、59+氟草敏、59+氟啶草酮。

60+磺草酮、60+硝磺草酮、60+苯唑草酮、60+环磺酮、60+氟吡草酮、60+吡喃磺草酮、60+双环磺草酮、60+lancotrione、60+双唑草酮、60+环吡氟草酮、60+三唑磺草酮、60+苯唑

氟草酮、60+磺酰草吡唑、60+吡唑特、60+吡草酮、60+tolpyralate、60+fenquinotrione、60+异噁唑草酮、60+氯氟吡氧乙酸或其酯、60+氟氯吡啶酯、60+氯氟吡啶酯、60+二氯喹啉酸、60+氯甲喹啉酸、60+2 甲 4 氯或其盐/酯、60+2-甲基-4-氯苯氧丙酸或其盐/酯、60+MCPB 或其盐/酯、60+2,4-D 或其盐/酯、60+2,4-滴丙酸或其盐/酯、60+2,4-DB 或其盐/酯、60+麦草畏、60+氨基吡啶酸、60+三氯吡氧乙酸、60+二氯吡啶酸、60+绿草定、60+氟咯草酮、60+吡草酮、60+吡氟酰草胺、60+氟吡酰草胺、60+氟丁酰草胺、60+氟草敏、60+氟啶草酮。

66+磺草酮、66+硝磺草酮、66+苯唑草酮、66+环磺酮、66+氟吡草酮、66+吡喃磺草酮、66+双环磺草酮、66+lancotrione、66+双唑草酮、66+环吡氟草酮、66+三唑磺草酮、66+苯唑氟草酮、66+磺酰草吡唑、66+吡唑特、66+吡草酮、66+tolpyralate、66+fenquinotrione、66+异噁唑草酮、66+氯氟吡氧乙酸或其酯、66+氟氯吡啶酯、66+氯氟吡啶酯、66+二氯喹啉酸、66+氯甲喹啉酸、66+2 甲 4 氯或其盐/酯、66+2-甲基-4-氯苯氧丙酸或其盐/酯、66+MCPB 或其盐/酯、66+2,4-D 或其盐/酯、66+2,4-滴丙酸或其盐/酯、66+2,4-DB 或其盐/酯、66+麦草畏、66+氨基吡啶酸、66+三氯吡氧乙酸、66+二氯吡啶酸、66+绿草定、66+氟咯草酮、66+吡草酮、66+吡氟酰草胺、66+氟吡酰草胺、66+氟丁酰草胺、66+氟草敏、66+氟啶草酮。

68+磺草酮、68+硝磺草酮、68+苯唑草酮、68+环磺酮、68+氟吡草酮、68+吡喃磺草酮、68+双环磺草酮、68+lancotrione、68+双唑草酮、68+环吡氟草酮、68+三唑磺草酮、68+苯唑氟草酮、68+磺酰草吡唑、68+吡唑特、68+吡草酮、68+tolpyralate、68+fenquinotrione、68+异噁唑草酮、68+氯氟吡氧乙酸或其酯、68+氟氯吡啶酯、68+氯氟吡啶酯、68+二氯喹啉酸、68+氯甲喹啉酸、68+2 甲 4 氯或其盐/酯、68+2-甲基-4-氯苯氧丙酸或其盐/酯、68+MCPB 或其盐/酯、68+2,4-D 或其盐/酯、68+2,4-滴丙酸或其盐/酯、68+2,4-DB 或其盐/酯、68+麦草畏、68+氨基吡啶酸、68+三氯吡氧乙酸、68+二氯吡啶酸、68+绿草定、68+氟咯草酮、68+吡草酮、68+吡氟酰草胺、68+氟吡酰草胺、68+氟丁酰草胺、68+氟草敏、68+氟啶草酮。

77+磺草酮、77+硝磺草酮、77+苯唑草酮、77+环磺酮、77+氟吡草酮、77+吡喃磺草酮、77+双环磺草酮、77+lancotrione、77+双唑草酮、77+环吡氟草酮、77+三唑磺草酮、77+苯唑氟草酮、77+磺酰草吡唑、77+吡唑特、77+吡草酮、77+tolpyralate、77+fenquinotrione、77+异噁唑草酮、77+氯氟吡氧乙酸或其酯、77+氟氯吡啶酯、77+氯氟吡啶酯、77+二氯喹啉酸、77+氯甲喹啉酸、77+2 甲 4 氯或其盐/酯、77+2-甲基-4-氯苯氧丙酸或其盐/酯、77+MCPB 或其盐/酯、77+2,4-D 或其盐/酯、77+2,4-滴丙酸或其盐/酯、77+2,4-DB 或其盐/酯、77+麦草畏、77+氨基吡啶酸、77+三氯吡氧乙酸、77+二氯吡啶酸、77+绿草定、77+氟咯草酮、77+吡草酮、77+吡氟酰草胺、77+氟吡酰草胺、77+氟丁酰草胺、77+氟草敏、77+氟啶草酮。

79+磺草酮、79+硝磺草酮、79+苯唑草酮、79+环磺酮、79+氟吡草酮、79+吡喃磺草酮、

79+双环磺草酮、79+lancotrione、79+双唑草酮、79+环吡氟草酮、79+三唑磺草酮、79+苯唑氟草酮、79+磺酰草吡唑、79+吡唑特、79+吡草酮、79+tolpyralate、79+fenquitrione、79+异噁唑草酮、79+氯氟吡氧乙酸或其酯、79+氟氯吡啶酯、79+氯氟吡啶酯、79+二氯喹啉酸、79+氯甲喹啉酸、79+2 甲 4 氯或其盐/酯、79+2-甲基-4-氯苯氧丙酸或其盐/酯、79+MCPB 或其盐/酯、79+2,4-D 或其盐/酯、79+2,4-滴丙酸或其盐/酯、79+2,4-DB 或其盐/酯、79+麦草畏、79+氨基吡啶酸、79+三氯吡氧乙酸、79+二氯吡啶酸、79+绿草定、79+氟咯草酮、79+吡草酮、79+吡氟酰草胺、79+氟吡酰草胺、79+氟丁酰草胺、79+氟草敏、79+氟啶草酮。

87+磺草酮、87+硝磺草酮、87+苯唑草酮、87+环磺酮、87+氟吡草酮、87+吡喃磺草酮、87+双环磺草酮、87+lancotrione、87+双唑草酮、87+环吡氟草酮、87+三唑磺草酮、87+苯唑氟草酮、87+磺酰草吡唑、87+吡唑特、87+吡草酮、87+tolpyralate、87+fenquitrione、87+异噁唑草酮、87+氯氟吡氧乙酸或其酯、87+氟氯吡啶酯、87+氯氟吡啶酯、87+二氯喹啉酸、87+氯甲喹啉酸、87+2 甲 4 氯或其盐/酯、87+2-甲基-4-氯苯氧丙酸或其盐/酯、87+MCPB 或其盐/酯、87+2,4-D 或其盐/酯、87+2,4-滴丙酸或其盐/酯、87+2,4-DB 或其盐/酯、87+麦草畏、87+氨基吡啶酸、87+三氯吡氧乙酸、87+二氯吡啶酸、87+绿草定、87+氟咯草酮、87+吡草酮、87+吡氟酰草胺、87+氟吡酰草胺、87+氟丁酰草胺、87+氟草敏、87+氟啶草酮。

92+磺草酮、92+硝磺草酮、92+苯唑草酮、92+环磺酮、92+氟吡草酮、92+吡喃磺草酮、92+双环磺草酮、92+lancotrione、92+双唑草酮、92+环吡氟草酮、92+三唑磺草酮、92+苯唑氟草酮、92+磺酰草吡唑、92+吡唑特、92+吡草酮、92+tolpyralate、92+fenquitrione、92+异噁唑草酮、92+氯氟吡氧乙酸或其酯、92+氟氯吡啶酯、92+氯氟吡啶酯、92+二氯喹啉酸、92+氯甲喹啉酸、92+2 甲 4 氯或其盐/酯、92+2-甲基-4-氯苯氧丙酸或其盐/酯、92+MCPB 或其盐/酯、92+2,4-D 或其盐/酯、92+2,4-滴丙酸或其盐/酯、92+2,4-DB 或其盐/酯、92+麦草畏、92+氨基吡啶酸、92+三氯吡氧乙酸、92+二氯吡啶酸、92+绿草定、92+氟咯草酮、92+吡草酮、92+吡氟酰草胺、92+氟吡酰草胺、92+氟丁酰草胺、92+氟草敏、92+氟啶草酮。

191+磺草酮、191+硝磺草酮、191+苯唑草酮、191+环磺酮、191+氟吡草酮、191+吡喃磺草酮、191+双环磺草酮、191+lancotrione、191+双唑草酮、191+环吡氟草酮、191+三唑磺草酮、191+苯唑氟草酮、191+磺酰草吡唑、191+吡唑特、191+吡草酮、191+tolpyralate、191+fenquitrione、191+异噁唑草酮、191+氯氟吡氧乙酸或其酯、191+氟氯吡啶酯、191+氯氟吡啶酯、191+二氯喹啉酸、191+氯甲喹啉酸、191+2 甲 4 氯或其盐/酯、191+2-甲基-4-氯苯氧丙酸或其盐/酯、191+MCPB 或其盐/酯、191+2,4-D 或其盐/酯、191+2,4-滴丙酸或其盐/酯、191+2,4-DB 或其盐/酯、191+麦草畏、191+氨基吡啶酸、191+三氯吡氧乙酸、191+二氯吡啶酸、191+绿草定、191+氟咯草酮、191+吡草酮、191+吡氟酰草胺、191+氟吡酰草胺、191+

氟丁酰草胺、191+氟草敏、191+氟啶草酮。

202+磺草酮、202+硝磺草酮、202+苯唑草酮、202+环磺酮、202+氟吡草酮、202+呋喃磺草酮、202+双环磺草酮、202+lancotrione、202+双唑草酮、202+环吡氟草酮、202+三唑磺草酮、202+苯唑氟草酮、202+磺酰草吡唑、202+吡唑特、202+吡草酮、202+tolpyralate、202+fenquinotrione、202+异噁唑草酮、202+氯氟吡氧乙酸或其酯、202+氟氯吡啶酯、202+氯氟吡啶酯、202+二氯喹啉酸、202+氯甲喹啉酸、202+2 甲 4 氯或其盐/酯、202+2-甲基-4-氯苯氧丙酸或其盐/酯、202+MCPB 或其盐/酯、202+2,4-D 或其盐/酯、202+2,4-滴丙酸或其盐/酯、202+2,4-DB 或其盐/酯、202+麦草畏、202+氨氯吡啶酸、202+三氯吡氧乙酸、202+二氯吡啶酸、202+绿草定、202+氟咯草酮、202+呋草酮、202+吡氟酰草胺、202+氟吡酰草胺、202+氟丁酰草胺、202+氟草敏、202+氟啶草酮。

206+磺草酮、206+硝磺草酮、206+苯唑草酮、206+环磺酮、206+氟吡草酮、206+呋喃磺草酮、206+双环磺草酮、206+lancotrione、206+双唑草酮、206+环吡氟草酮、206+三唑磺草酮、206+苯唑氟草酮、206+磺酰草吡唑、206+吡唑特、206+吡草酮、206+tolpyralate、206+fenquinotrione、206+异噁唑草酮、206+氯氟吡氧乙酸或其酯、206+氟氯吡啶酯、206+氯氟吡啶酯、206+二氯喹啉酸、206+氯甲喹啉酸、206+2 甲 4 氯或其盐/酯、206+2-甲基-4-氯苯氧丙酸或其盐/酯、206+MCPB 或其盐/酯、206+2,4-D 或其盐/酯、206+2,4-滴丙酸或其盐/酯、206+2,4-DB 或其盐/酯、206+麦草畏、206+氨氯吡啶酸、206+三氯吡氧乙酸、206+二氯吡啶酸、206+绿草定、206+氟咯草酮、206+呋草酮、206+吡氟酰草胺、206+氟吡酰草胺、206+氟丁酰草胺、206+氟草敏、206+氟啶草酮。

207+磺草酮、207+硝磺草酮、207+苯唑草酮、207+环磺酮、207+氟吡草酮、207+呋喃磺草酮、207+双环磺草酮、207+lancotrione、207+双唑草酮、207+环吡氟草酮、207+三唑磺草酮、207+苯唑氟草酮、207+磺酰草吡唑、207+吡唑特、207+吡草酮、207+tolpyralate、207+fenquinotrione、207+异噁唑草酮、207+氯氟吡氧乙酸或其酯、207+氟氯吡啶酯、207+氯氟吡啶酯、207+二氯喹啉酸、207+氯甲喹啉酸、207+2 甲 4 氯或其盐/酯、207+2-甲基-4-氯苯氧丙酸或其盐/酯、207+MCPB 或其盐/酯、207+2,4-D 或其盐/酯、207+2,4-滴丙酸或其盐/酯、207+2,4-DB 或其盐/酯、207+麦草畏、207+氨氯吡啶酸、207+三氯吡氧乙酸、207+二氯吡啶酸、207+绿草定、207+氟咯草酮、207+呋草酮、207+吡氟酰草胺、207+氟吡酰草胺、207+氟丁酰草胺、207+氟草敏、207+氟啶草酮。

220+磺草酮、220+硝磺草酮、220+苯唑草酮、220+环磺酮、220+氟吡草酮、220+呋喃磺草酮、220+双环磺草酮、220+lancotrione、220+双唑草酮、220+环吡氟草酮、220+三唑磺草酮、220+苯唑氟草酮、220+磺酰草吡唑、220+吡唑特、220+吡草酮、220+tolpyralate、

220+fenquinotrione、220+异噁唑草酮、220+氯氟吡氧乙酸或其酯、220+氟氯吡啶酯、220+氯氟吡啶酯、220+二氯喹啉酸、220+氯甲喹啉酸、220+2 甲 4 氯或其盐/酯、220+2-甲基-4-氯苯氧丙酸或其盐/酯、220+MCPB 或其盐/酯、220+2,4-D 或其盐/酯、220+2,4-滴丙酸或其盐/酯、220+2,4-DB 或其盐/酯、220+麦草畏、220+氨氯吡啶酸、220+三氯吡氧乙酸、220+二氯吡啶酸、220+绿草定、220+氟咯草酮、220+吡草酮、220+吡氟酰草胺、220+氟吡酰草胺、220+氟丁酰草胺、220+氟草敏、220+氟啶草酮。

278+磺草酮、278+硝磺草酮、278+苯唑草酮、278+环磺酮、278+氟吡草酮、278+吡喃磺草酮、278+双环磺草酮、278+lancotrione、278+双唑草酮、278+环吡氟草酮、278+三唑磺草酮、278+苯唑氟草酮、278+磺酰草吡唑、278+吡唑特、278+吡草酮、278+tolpyralate、278+fenquinotrione、278+异噁唑草酮、278+氯氟吡氧乙酸或其酯、278+氟氯吡啶酯、278+氯氟吡啶酯、278+二氯喹啉酸、278+氯甲喹啉酸、278+2 甲 4 氯或其盐/酯、278+2-甲基-4-氯苯氧丙酸或其盐/酯、278+MCPB 或其盐/酯、278+2,4-D 或其盐/酯、278+2,4-滴丙酸或其盐/酯、278+2,4-DB 或其盐/酯、278+麦草畏、278+氨氯吡啶酸、278+三氯吡氧乙酸、278+二氯吡啶酸、278+绿草定、278+氟咯草酮、278+吡草酮、278+吡氟酰草胺、278+氟吡酰草胺、278+氟丁酰草胺、278+氟草敏、278+氟啶草酮。

341+磺草酮、341+硝磺草酮、341+苯唑草酮、341+环磺酮、341+氟吡草酮、341+吡喃磺草酮、341+双环磺草酮、341+lancotrione、341+双唑草酮、341+环吡氟草酮、341+三唑磺草酮、341+苯唑氟草酮、341+磺酰草吡唑、341+吡唑特、341+吡草酮、341+tolpyralate、341+fenquinotrione、341+异噁唑草酮、341+氯氟吡氧乙酸或其酯、341+氟氯吡啶酯、341+氯氟吡啶酯、341+二氯喹啉酸、341+氯甲喹啉酸、341+2 甲 4 氯或其盐/酯、341+2-甲基-4-氯苯氧丙酸或其盐/酯、341+MCPB 或其盐/酯、341+2,4-D 或其盐/酯、341+2,4-滴丙酸或其盐/酯、341+2,4-DB 或其盐/酯、341+麦草畏、341+氨氯吡啶酸、341+三氯吡氧乙酸、341+二氯吡啶酸、341+绿草定、341+氟咯草酮、341+吡草酮、341+吡氟酰草胺、341+氟吡酰草胺、341+氟丁酰草胺、341+氟草敏、341+氟啶草酮。

732+磺草酮、732+硝磺草酮、732+苯唑草酮、732+环磺酮、732+氟吡草酮、732+吡喃磺草酮、732+双环磺草酮、732+lancotrione、732+双唑草酮、732+环吡氟草酮、732+三唑磺草酮、732+苯唑氟草酮、732+磺酰草吡唑、732+吡唑特、732+吡草酮、732+tolpyralate、732+fenquinotrione、732+异噁唑草酮、732+氯氟吡氧乙酸或其酯、732+氟氯吡啶酯、732+氯氟吡啶酯、732+二氯喹啉酸、732+氯甲喹啉酸、732+2 甲 4 氯或其盐/酯、732+2-甲基-4-氯苯氧丙酸或其盐/酯、732+MCPB 或其盐/酯、732+2,4-D 或其盐/酯、732+2,4-滴丙酸或其盐/酯、732+2,4-DB 或其盐/酯、732+麦草畏、732+氨氯吡啶酸、732+三氯吡氧乙酸、732+二氯

吡啶酸、732+绿草定、732+氟咯草酮、732+呋草酮、732+吡氟酰草胺、732+氟吡酰草胺、732+氟丁酰草胺、732+氟草敏、732+氟啶草酮。

733+磺草酮、733+硝磺草酮、733+苯唑草酮、733+环磺酮、733+氟吡草酮、733+呋喃磺草酮、733+双环磺草酮、733+lancotrione、733+双唑草酮、733+环吡氟草酮、733+三唑磺草酮、733+苯唑氟草酮、733+磺酰草吡唑、733+吡唑特、733+吡草酮、733+tolpyralate、733+fenquitrione、733+异噁唑草酮、733+氯氟吡氧乙酸或其酯、733+氟氯吡啶酯、733+氯氟吡啶酯、733+二氯喹啉酸、733+氯甲喹啉酸、733+2 甲 4 氯或其盐/酯、733+2-甲基-4-氯苯氧丙酸或其盐/酯、733+MCPB 或其盐/酯、733+2,4-D 或其盐/酯、733+2,4-滴丙酸或其盐/酯、733+2,4-DB 或其盐/酯、733+麦草畏、733+氨基吡啶酸、733+三氯吡氧乙酸、733+二氯吡啶酸、733+绿草定、733+氟咯草酮、733+呋草酮、733+吡氟酰草胺、733+氟吡酰草胺、733+氟丁酰草胺、733+氟草敏、733+氟啶草酮。

734+磺草酮、734+硝磺草酮、734+苯唑草酮、734+环磺酮、734+氟吡草酮、734+呋喃磺草酮、734+双环磺草酮、734+lancotrione、734+双唑草酮、734+环吡氟草酮、734+三唑磺草酮、734+苯唑氟草酮、734+磺酰草吡唑、734+吡唑特、734+吡草酮、734+tolpyralate、734+fenquitrione、734+异噁唑草酮、734+氯氟吡氧乙酸或其酯、734+氟氯吡啶酯、734+氯氟吡啶酯、734+二氯喹啉酸、734+氯甲喹啉酸、734+2 甲 4 氯或其盐/酯、734+2-甲基-4-氯苯氧丙酸或其盐/酯、734+MCPB 或其盐/酯、734+2,4-D 或其盐/酯、734+2,4-滴丙酸或其盐/酯、734+2,4-DB 或其盐/酯、734+麦草畏、734+氨基吡啶酸、734+三氯吡氧乙酸、734+二氯吡啶酸、734+绿草定、734+氟咯草酮、734+呋草酮、734+吡氟酰草胺、734+氟吡酰草胺、734+氟丁酰草胺、734+氟草敏、734+氟啶草酮。

735+磺草酮、735+硝磺草酮、735+苯唑草酮、735+环磺酮、735+氟吡草酮、735+呋喃磺草酮、735+双环磺草酮、735+lancotrione、735+双唑草酮、735+环吡氟草酮、735+三唑磺草酮、735+苯唑氟草酮、735+磺酰草吡唑、735+吡唑特、735+吡草酮、735+tolpyralate、735+fenquitrione、735+异噁唑草酮、735+氯氟吡氧乙酸或其酯、735+氟氯吡啶酯、735+氯氟吡啶酯、735+二氯喹啉酸、735+氯甲喹啉酸、735+2 甲 4 氯或其盐/酯、735+2-甲基-4-氯苯氧丙酸或其盐/酯、735+MCPB 或其盐/酯、735+2,4-D 或其盐/酯、735+2,4-滴丙酸或其盐/酯、735+2,4-DB 或其盐/酯、735+麦草畏、735+氨基吡啶酸、735+三氯吡氧乙酸、735+二氯吡啶酸、735+绿草定、735+氟咯草酮、735+呋草酮、735+吡氟酰草胺、735+氟吡酰草胺、735+氟丁酰草胺、735+氟草敏、735+氟啶草酮。

736+磺草酮、736+硝磺草酮、736+苯唑草酮、736+环磺酮、736+氟吡草酮、736+呋喃磺草酮、736+双环磺草酮、736+lancotrione、736+双唑草酮、736+环吡氟草酮、736+三唑磺草

酮、736+苯唑氟草酮、736+磺酰草吡唑、736+吡唑特、736+吡草酮、736+tolpyralate、736+fenquitrione、736+异噁唑草酮、736+氯氟吡氧乙酸或其酯、736+氟氯吡啶酯、736+氯氟吡啶酯、736+二氯喹啉酸、736+氯甲喹啉酸、736+2 甲 4 氯或其盐/酯、736+2-甲基-4-氯苯氧丙酸或其盐/酯、736+MCPB 或其盐/酯、736+2,4-D 或其盐/酯、736+2,4-滴丙酸或其盐/酯、736+2,4-DB 或其盐/酯、736+麦草畏、736+氯氟吡啶酸、736+三氯吡氧乙酸、736+二氯吡啶酸、736+绿草定、736+氟咯草酮、736+吡草酮、736+吡氟酰草胺、736+氟吡酰草胺、736+氟丁酰草胺、736+氟草敏、736+氟啶草酮。

737+磺草酮、737+硝磺草酮、737+苯唑草酮、737+环磺酮、737+氟吡草酮、737+吡喃磺草酮、737+双环磺草酮、737+lancotrione、737+双唑草酮、737+环吡氟草酮、737+三唑磺草酮、737+苯唑氟草酮、737+磺酰草吡唑、737+吡唑特、737+吡草酮、737+tolpyralate、737+fenquitrione、737+异噁唑草酮、737+氯氟吡氧乙酸或其酯、737+氟氯吡啶酯、737+氯氟吡啶酯、737+二氯喹啉酸、737+氯甲喹啉酸、737+2 甲 4 氯或其盐/酯、737+2-甲基-4-氯苯氧丙酸或其盐/酯、737+MCPB 或其盐/酯、737+2,4-D 或其盐/酯、737+2,4-滴丙酸或其盐/酯、737+2,4-DB 或其盐/酯、737+麦草畏、737+氯氟吡啶酸、737+三氯吡氧乙酸、737+二氯吡啶酸、737+绿草定、737+氟咯草酮、737+吡草酮、737+吡氟酰草胺、737+氟吡酰草胺、737+氟丁酰草胺、737+氟草敏、737+氟啶草酮。

738+磺草酮、738+硝磺草酮、738+苯唑草酮、738+环磺酮、738+氟吡草酮、738+吡喃磺草酮、738+双环磺草酮、738+lancotrione、738+双唑草酮、738+环吡氟草酮、738+三唑磺草酮、738+苯唑氟草酮、738+磺酰草吡唑、738+吡唑特、738+吡草酮、738+tolpyralate、738+fenquitrione、738+异噁唑草酮、738+氯氟吡氧乙酸或其酯、738+氟氯吡啶酯、738+氯氟吡啶酯、738+二氯喹啉酸、738+氯甲喹啉酸、738+2 甲 4 氯或其盐/酯、738+2-甲基-4-氯苯氧丙酸或其盐/酯、738+MCPB 或其盐/酯、738+2,4-D 或其盐/酯、738+2,4-滴丙酸或其盐/酯、738+2,4-DB 或其盐/酯、738+麦草畏、738+氯氟吡啶酸、738+三氯吡氧乙酸、738+二氯吡啶酸、738+绿草定、738+氟咯草酮、738+吡草酮、738+吡氟酰草胺、738+氟吡酰草胺、738+氟丁酰草胺、738+氟草敏、738+氟啶草酮。

739+磺草酮、739+硝磺草酮、739+苯唑草酮、739+环磺酮、739+氟吡草酮、739+吡喃磺草酮、739+双环磺草酮、739+lancotrione、739+双唑草酮、739+环吡氟草酮、739+三唑磺草酮、739+苯唑氟草酮、739+磺酰草吡唑、739+吡唑特、739+吡草酮、739+tolpyralate、739+fenquitrione、739+异噁唑草酮、739+氯氟吡氧乙酸或其酯、739+氟氯吡啶酯、739+氯氟吡啶酯、739+二氯喹啉酸、739+氯甲喹啉酸、739+2 甲 4 氯或其盐/酯、739+2-甲基-4-氯苯氧丙酸或其盐/酯、739+MCPB 或其盐/酯、739+2,4-D 或其盐/酯、739+2,4-滴丙酸或其盐

/酯、739+2,4-DB 或其盐/酯、739+麦草畏、739+氯氟吡啶酸、739+三氯吡氧乙酸、739+二氯吡啶酸、739+绿草定、739+氟咯草酮、739+吡草酮、739+吡氟酰草胺、739+氟吡酰草胺、739+氟丁酰草胺、739+氟草敏、739+氟啶草酮。

740+磺草酮、740+硝磺草酮、740+苯唑草酮、740+环磺酮、740+氟吡草酮、740+吡喃磺草酮、740+双环磺草酮、740+lancotrione、740+双唑草酮、740+环吡氟草酮、740+三唑磺草酮、740+苯唑氟草酮、740+磺酰草吡唑、740+吡唑特、740+吡草酮、740+tolpyralate、740+fenquitrione、740+异噁唑草酮、740+氯氟吡氧乙酸或其酯、740+氟氯吡啶酯、740+氯氟吡啶酯、740+二氯喹啉酸、740+氯甲喹啉酸、740+2 甲 4 氯或其盐/酯、740+2-甲基-4-氯苯氧丙酸或其盐/酯、740+MCPB 或其盐/酯、740+2,4-D 或其盐/酯、740+2,4-滴丙酸或其盐/酯、740+2,4-DB 或其盐/酯、740+麦草畏、740+氯氟吡啶酸、740+三氯吡氧乙酸、740+二氯吡啶酸、740+绿草定、740+氟咯草酮、740+吡草酮、740+吡氟酰草胺、740+氟吡酰草胺、740+氟丁酰草胺、740+氟草敏、740+氟啶草酮。

741+磺草酮、741+硝磺草酮、741+苯唑草酮、741+环磺酮、741+氟吡草酮、741+吡喃磺草酮、741+双环磺草酮、741+lancotrione、741+双唑草酮、741+环吡氟草酮、741+三唑磺草酮、741+苯唑氟草酮、741+磺酰草吡唑、741+吡唑特、741+吡草酮、741+tolpyralate、741+fenquitrione、741+异噁唑草酮、741+氯氟吡氧乙酸或其酯、741+氟氯吡啶酯、741+氯氟吡啶酯、741+二氯喹啉酸、741+氯甲喹啉酸、741+2 甲 4 氯或其盐/酯、741+2-甲基-4-氯苯氧丙酸或其盐/酯、741+MCPB 或其盐/酯、741+2,4-D 或其盐/酯、741+2,4-滴丙酸或其盐/酯、741+2,4-DB 或其盐/酯、741+麦草畏、741+氯氟吡啶酸、741+三氯吡氧乙酸、741+二氯吡啶酸、741+绿草定、741+氟咯草酮、741+吡草酮、741+吡氟酰草胺、741+氟吡酰草胺、741+氟丁酰草胺、741+氟草敏、741+氟啶草酮。

742+磺草酮、742+硝磺草酮、742+苯唑草酮、742+环磺酮、742+氟吡草酮、742+吡喃磺草酮、742+双环磺草酮、742+lancotrione、742+双唑草酮、742+环吡氟草酮、742+三唑磺草酮、742+苯唑氟草酮、742+磺酰草吡唑、742+吡唑特、742+吡草酮、742+tolpyralate、742+fenquitrione、742+异噁唑草酮、742+氯氟吡氧乙酸或其酯、742+氟氯吡啶酯、742+氯氟吡啶酯、742+二氯喹啉酸、742+氯甲喹啉酸、742+2 甲 4 氯或其盐/酯、742+2-甲基-4-氯苯氧丙酸或其盐/酯、742+MCPB 或其盐/酯、742+2,4-D 或其盐/酯、742+2,4-滴丙酸或其盐/酯、742+2,4-DB 或其盐/酯、742+麦草畏、742+氯氟吡啶酸、742+三氯吡氧乙酸、742+二氯吡啶酸、742+绿草定、742+氟咯草酮、742+吡草酮、742+吡氟酰草胺、742+氟吡酰草胺、742+氟丁酰草胺、742+氟草敏、742+氟啶草酮。

743+磺草酮、743+硝磺草酮、743+苯唑草酮、743+环磺酮、743+氟吡草酮、743+吡喃磺

草酮、743+双环磺草酮、743+lancotrione、743+双唑草酮、743+环吡氟草酮、743+三唑磺草酮、743+苯唑氟草酮、743+磺酰草吡唑、743+吡唑特、743+吡草酮、743+tolpyralate、743+fenquinotrione、743+异噁唑草酮、743+氯氟吡氧乙酸或其酯、743+氟氯吡啶酯、743+氯氟吡啶酯、743+二氯喹啉酸、743+氯甲喹啉酸、743+2 甲 4 氯或其盐/酯、743+2-甲基-4-氯苯氧丙酸或其盐/酯、743+MCPB 或其盐/酯、743+2,4-D 或其盐/酯、743+2,4-滴丙酸或其盐/酯、743+2,4-DB 或其盐/酯、743+麦草畏、743+氯氟吡啶酸、743+三氯吡氧乙酸、743+二氯吡啶酸、743+绿草定、743+氟咯草酮、743+吡草酮、743+吡氟酰草胺、743+氟吡酰草胺、743+氟丁酰草胺、743+氟草敏、743+氟啶草酮。

744+磺草酮、744+硝磺草酮、744+苯唑草酮、744+环磺酮、744+氟吡草酮、744+吡喃磺草酮、744+双环磺草酮、744+lancotrione、744+双唑草酮、744+环吡氟草酮、744+三唑磺草酮、744+苯唑氟草酮、744+磺酰草吡唑、744+吡唑特、744+吡草酮、744+tolpyralate、744+fenquinotrione、744+异噁唑草酮、744+氯氟吡氧乙酸或其酯、744+氟氯吡啶酯、744+氯氟吡啶酯、744+二氯喹啉酸、744+氯甲喹啉酸、744+2 甲 4 氯或其盐/酯、744+2-甲基-4-氯苯氧丙酸或其盐/酯、744+MCPB 或其盐/酯、744+2,4-D 或其盐/酯、744+2,4-滴丙酸或其盐/酯、744+2,4-DB 或其盐/酯、744+麦草畏、744+氯氟吡啶酸、744+三氯吡氧乙酸、744+二氯吡啶酸、744+绿草定、744+氟咯草酮、744+吡草酮、744+吡氟酰草胺、744+氟吡酰草胺、744+氟丁酰草胺、744+氟草敏、744+氟啶草酮。

745+磺草酮、745+硝磺草酮、745+苯唑草酮、745+环磺酮、745+氟吡草酮、745+吡喃磺草酮、745+双环磺草酮、745+lancotrione、745+双唑草酮、745+环吡氟草酮、745+三唑磺草酮、745+苯唑氟草酮、745+磺酰草吡唑、745+吡唑特、745+吡草酮、745+tolpyralate、745+fenquinotrione、745+异噁唑草酮、745+氯氟吡氧乙酸或其酯、745+氟氯吡啶酯、745+氯氟吡啶酯、745+二氯喹啉酸、745+氯甲喹啉酸、745+2 甲 4 氯或其盐/酯、745+2-甲基-4-氯苯氧丙酸或其盐/酯、745+MCPB 或其盐/酯、745+2,4-D 或其盐/酯、745+2,4-滴丙酸或其盐/酯、745+2,4-DB 或其盐/酯、745+麦草畏、745+氯氟吡啶酸、745+三氯吡氧乙酸、745+二氯吡啶酸、745+绿草定、745+氟咯草酮、745+吡草酮、745+吡氟酰草胺、745+氟吡酰草胺、745+氟丁酰草胺、745+氟草敏、745+氟啶草酮。

746+磺草酮、746+硝磺草酮、746+苯唑草酮、746+环磺酮、746+氟吡草酮、746+吡喃磺草酮、746+双环磺草酮、746+lancotrione、746+双唑草酮、746+环吡氟草酮、746+三唑磺草酮、746+苯唑氟草酮、746+磺酰草吡唑、746+吡唑特、746+吡草酮、746+tolpyralate、746+fenquinotrione、746+异噁唑草酮、746+氯氟吡氧乙酸或其酯、746+氟氯吡啶酯、746+氯氟吡啶酯、746+二氯喹啉酸、746+氯甲喹啉酸、746+2 甲 4 氯或其盐/酯、746+2-甲基-4-

氯苯氧丙酸或其盐/酯、746+MCPB 或其盐/酯、746+2,4-D 或其盐/酯、746+2,4-滴丙酸或其盐/酯、746+2,4-DB 或其盐/酯、746+麦草畏、746+氯氟吡啶酸、746+三氯吡氧乙酸、746+二氯吡啶酸、746+绿草定、746+氟咯草酮、746+吡草酮、746+吡氟酰草胺、746+氟吡酰草胺、746+氟丁酰草胺、746+氟草敏、746+氟啶草酮。

779+磺草酮、779+硝磺草酮、779+苯唑草酮、779+环磺酮、779+氟吡草酮、779+吡喃磺草酮、779+双环磺草酮、779+lancotrione、779+双唑草酮、779+环吡氟草酮、779+三唑磺草酮、779+苯唑氟草酮、779+磺酰草吡唑、779+吡唑特、779+吡草酮、779+tolpyralate、779+fenquitrione、779+异噁唑草酮、779+氯氟吡氧乙酸或其酯、779+氯氟吡啶酯、779+氯氟吡啶酯、779+二氯喹啉酸、779+氯甲喹啉酸、779+2 甲 4 氯或其盐/酯、779+2-甲基-4-氯苯氧丙酸或其盐/酯、779+MCPB 或其盐/酯、779+2,4-D 或其盐/酯、779+2,4-滴丙酸或其盐/酯、779+2,4-DB 或其盐/酯、779+麦草畏、779+氯氟吡啶酸、779+三氯吡氧乙酸、779+二氯吡啶酸、779+绿草定、779+氟咯草酮、779+吡草酮、779+吡氟酰草胺、779+氟吡酰草胺、779+氟丁酰草胺、779+氟草敏、779+氟啶草酮。

963+磺草酮、963+硝磺草酮、963+苯唑草酮、963+环磺酮、963+氟吡草酮、963+吡喃磺草酮、963+双环磺草酮、963+lancotrione、963+双唑草酮、963+环吡氟草酮、963+三唑磺草酮、963+苯唑氟草酮、963+磺酰草吡唑、963+吡唑特、963+吡草酮、963+tolpyralate、963+fenquitrione、963+异噁唑草酮、963+氯氟吡氧乙酸或其酯、963+氯氟吡啶酯、963+氯氟吡啶酯、963+二氯喹啉酸、963+氯甲喹啉酸、963+2 甲 4 氯或其盐/酯、963+2-甲基-4-氯苯氧丙酸或其盐/酯、963+MCPB 或其盐/酯、963+2,4-D 或其盐/酯、963+2,4-滴丙酸或其盐/酯、963+2,4-DB 或其盐/酯、963+麦草畏、963+氯氟吡啶酸、963+三氯吡氧乙酸、963+二氯吡啶酸、963+绿草定、963+氟咯草酮、963+吡草酮、963+吡氟酰草胺、963+氟吡酰草胺、963+氟丁酰草胺、963+氟草敏、963+氟啶草酮。

1000+磺草酮、1000+硝磺草酮、1000+苯唑草酮、1000+环磺酮、1000+氟吡草酮、1000+吡喃磺草酮、1000+双环磺草酮、1000+lancotrione、1000+双唑草酮、1000+环吡氟草酮、1000+三唑磺草酮、1000+苯唑氟草酮、1000+磺酰草吡唑、1000+吡唑特、1000+吡草酮、1000+tolpyralate、1000+fenquitrione、1000+异噁唑草酮、1000+氯氟吡氧乙酸或其酯、1000+氯氟吡啶酯、1000+氯氟吡啶酯、1000+二氯喹啉酸、1000+氯甲喹啉酸、1000+2 甲 4 氯或其盐/酯、1000+2-甲基-4-氯苯氧丙酸或其盐/酯、1000+MCPB 或其盐/酯、1000+2,4-D 或其盐/酯、1000+2,4-滴丙酸或其盐/酯、1000+2,4-DB 或其盐/酯、1000+麦草畏、1000+氯氟吡啶酸、1000+三氯吡氧乙酸、1000+二氯吡啶酸、1000+绿草定、1000+氟咯草酮、1000+吡草酮、1000+吡氟酰草胺、1000+氟吡酰草胺、1000+氟丁酰草胺、1000+氟草敏、1000+氟啶草酮。

1-3+磺草酮、1-3+硝磺草酮、1-3+苯唑草酮、1-3+环磺酮、1-3+氟吡草酮、1-3+呋喃磺草酮、1-3+双环磺草酮、1-3+lancotrione、1-3+双唑草酮、1-3+环吡氟草酮、1-3+三唑磺草酮、1-3+苯唑氟草酮、1-3+磺酰草吡唑、1-3+吡唑特、1-3+吡草酮、1-3+tolpyralate、1-3+fenquinotrione、1-3+异噁唑草酮、1-3+氯氟吡氧乙酸或其酯、1-3+氟氯吡啶酯、1-3+氯氟吡啶酯、1-3+二氯喹啉酸、1-3+氯甲喹啉酸、1-3+2-甲-4-氯或其盐/酯、1-3+2-甲基-4-氯苯氧丙酸或其盐/酯、1-3+MCPB 或其盐/酯、1-3+2,4-D 或其盐/酯、1-3+2,4-滴丙酸或其盐/酯、1-3+2,4-DB 或其盐/酯、1-3+麦草畏、1-3+氨基吡啶酸、1-3+三氯吡氧乙酸、1-3+二氯吡啶酸、1-3+绿草定、1-3+氟咯草酮、1-3+呋草酮、1-3+吡氟酰草胺、1-3+氟吡酰草胺、1-3+氟丁酰草胺、1-3+氟草敏、1-3+氟啶草酮。

1-39+磺草酮、1-39+硝磺草酮、1-39+苯唑草酮、1-39+环磺酮、1-39+氟吡草酮、1-39+呋喃磺草酮、1-39+双环磺草酮、1-39+lancotrione、1-39+双唑草酮、1-39+环吡氟草酮、1-39+三唑磺草酮、1-39+苯唑氟草酮、1-39+磺酰草吡唑、1-39+吡唑特、1-39+吡草酮、1-39+tolpyralate、1-39+fenquinotrione、1-39+异噁唑草酮、1-39+氯氟吡氧乙酸或其酯、1-39+氟氯吡啶酯、1-39+氯氟吡啶酯、1-39+二氯喹啉酸、1-39+氯甲喹啉酸、1-39+2-甲-4-氯或其盐/酯、1-39+2-甲基-4-氯苯氧丙酸或其盐/酯、1-39+MCPB 或其盐/酯、1-39+2,4-D 或其盐/酯、1-39+2,4-滴丙酸或其盐/酯、1-39+2,4-DB 或其盐/酯、1-39+麦草畏、1-39+氨基吡啶酸、1-39+三氯吡氧乙酸、1-39+二氯吡啶酸、1-39+绿草定、1-39+氟咯草酮、1-39+呋草酮、1-39+吡氟酰草胺、1-39+氟吡酰草胺、1-39+氟丁酰草胺、1-39+氟草敏、1-39+氟啶草酮。

1-43+磺草酮、1-43+硝磺草酮、1-43+苯唑草酮、1-43+环磺酮、1-43+氟吡草酮、1-43+呋喃磺草酮、1-43+双环磺草酮、1-43+lancotrione、1-43+双唑草酮、1-43+环吡氟草酮、1-43+三唑磺草酮、1-43+苯唑氟草酮、1-43+磺酰草吡唑、1-43+吡唑特、1-43+吡草酮、1-43+tolpyralate、1-43+fenquinotrione、1-43+异噁唑草酮、1-43+氯氟吡氧乙酸或其酯、1-43+氟氯吡啶酯、1-43+氯氟吡啶酯、1-43+二氯喹啉酸、1-43+氯甲喹啉酸、1-43+2-甲-4-氯或其盐/酯、1-43+2-甲基-4-氯苯氧丙酸或其盐/酯、1-43+MCPB 或其盐/酯、1-43+2,4-D 或其盐/酯、1-43+2,4-滴丙酸或其盐/酯、1-43+2,4-DB 或其盐/酯、1-43+麦草畏、1-43+氨基吡啶酸、1-43+三氯吡氧乙酸、1-43+二氯吡啶酸、1-43+绿草定、1-43+氟咯草酮、1-43+呋草酮、1-43+吡氟酰草胺、1-43+氟吡酰草胺、1-43+氟丁酰草胺、1-43+氟草敏、1-43+氟啶草酮。

1-55+磺草酮、1-55+硝磺草酮、1-55+苯唑草酮、1-55+环磺酮、1-55+氟吡草酮、1-55+呋喃磺草酮、1-55+双环磺草酮、1-55+lancotrione、1-55+双唑草酮、1-55+环吡氟草酮、1-55+三唑磺草酮、1-55+苯唑氟草酮、1-55+磺酰草吡唑、1-55+吡唑特、1-55+吡草酮、1-55+tolpyralate、1-55+fenquinotrione、1-55+异噁唑草酮、1-55+氯氟吡氧乙酸或其酯、1-55+

氟氯吡啶酯、1-55+氟氯吡啶酯、1-55+二氯喹啉酸、1-55+氯甲喹啉酸、1-55+2 甲 4 氯或其盐/酯、1-55+2-甲基-4-氯苯氧丙酸或其盐/酯、1-55+MCPB 或其盐/酯、1-55+2,4-D 或其盐/酯、1-55+2,4-滴丙酸或其盐/酯、1-55+2,4-DB 或其盐/酯、1-55+麦草畏、1-55+氟氯吡啶酸、1-55+三氯吡氧乙酸、1-55+二氯吡啶酸、1-55+绿草定、1-55+氟咯草酮、1-55+吡草酮、1-55+吡氟酰草胺、1-55+氟吡酰草胺、1-55+氟丁酰草胺、1-55+氟草敏、1-55+氟啶草酮。

1-82+磺草酮、1-82+硝磺草酮、1-82+苯唑草酮、1-82+环磺酮、1-82+氟吡草酮、1-82+吡喃磺草酮、1-82+双环磺草酮、1-82+lancotrione、1-82+双唑草酮、1-82+环吡氟草酮、1-82+三唑磺草酮、1-82+苯唑氟草酮、1-82+磺酰草吡唑、1-82+吡唑特、1-82+吡草酮、1-82+tolpyralate、1-82+fenquitrione、1-82+异噁唑草酮、1-82+氟氯吡氧乙酸或其酯、1-82+氟氯吡啶酯、1-82+氟氯吡啶酯、1-82+二氯喹啉酸、1-82+氯甲喹啉酸、1-82+2 甲 4 氯或其盐/酯、1-82+2-甲基-4-氯苯氧丙酸或其盐/酯、1-82+MCPB 或其盐/酯、1-82+2,4-D 或其盐/酯、1-82+2,4-滴丙酸或其盐/酯、1-82+2,4-DB 或其盐/酯、1-82+麦草畏、1-82+氟氯吡啶酸、1-82+三氯吡氧乙酸、1-82+二氯吡啶酸、1-82+绿草定、1-82+氟咯草酮、1-82+吡草酮、1-82+吡氟酰草胺、1-82+氟吡酰草胺、1-82+氟丁酰草胺、1-82+氟草敏、1-82+氟啶草酮。

1-86+磺草酮、1-86+硝磺草酮、1-86+苯唑草酮、1-86+环磺酮、1-86+氟吡草酮、1-86+吡喃磺草酮、1-86+双环磺草酮、1-86+lancotrione、1-86+双唑草酮、1-86+环吡氟草酮、1-86+三唑磺草酮、1-86+苯唑氟草酮、1-86+磺酰草吡唑、1-86+吡唑特、1-86+吡草酮、1-86+tolpyralate、1-86+fenquitrione、1-86+异噁唑草酮、1-86+氟氯吡氧乙酸或其酯、1-86+氟氯吡啶酯、1-86+氟氯吡啶酯、1-86+二氯喹啉酸、1-86+氯甲喹啉酸、1-86+2 甲 4 氯或其盐/酯、1-86+2-甲基-4-氯苯氧丙酸或其盐/酯、1-86+MCPB 或其盐/酯、1-86+2,4-D 或其盐/酯、1-86+2,4-滴丙酸或其盐/酯、1-86+2,4-DB 或其盐/酯、1-86+麦草畏、1-86+氟氯吡啶酸、1-86+三氯吡氧乙酸、1-86+二氯吡啶酸、1-86+绿草定、1-86+氟咯草酮、1-86+吡草酮、1-86+吡氟酰草胺、1-86+氟吡酰草胺、1-86+氟丁酰草胺、1-86+氟草敏、1-86+氟啶草酮。

1-226+磺草酮、1-226+硝磺草酮、1-226+苯唑草酮、1-226+环磺酮、1-226+氟吡草酮、1-226+吡喃磺草酮、1-226+双环磺草酮、1-226+lancotrione、1-226+双唑草酮、1-226+环吡氟草酮、1-226+三唑磺草酮、1-226+苯唑氟草酮、1-226+磺酰草吡唑、1-226+吡唑特、1-226+吡草酮、1-226+tolpyralate、1-226+fenquitrione、1-226+异噁唑草酮、1-226+氟氯吡氧乙酸或其酯、1-226+氟氯吡啶酯、1-226+氟氯吡啶酯、1-226+二氯喹啉酸、1-226+氯甲喹啉酸、1-226+2 甲 4 氯或其盐/酯、1-226+2-甲基-4-氯苯氧丙酸或其盐/酯、1-226+MCPB 或其盐/酯、1-226+2,4-D 或其盐/酯、1-226+2,4-滴丙酸或其盐/酯、1-226+2,4-DB 或其盐/酯、1-226+麦草畏、1-226+氟氯吡啶酸、1-226+三氯吡氧乙酸、1-226+二氯吡啶酸、1-226+绿草定、1-226+氟咯草酮、1-226+

呋草酮、1-226+吡氟酰草胺、1-226+氟吡酰草胺、1-226+氟丁酰草胺、1-226+氟草敏、1-226+氟啶草酮。

1-227+磺草酮、1-227+硝磺草酮、1-227+苯唑草酮、1-227+环磺酮、1-227+氟吡草酮、1-227+呋喃磺草酮、1-227+双环磺草酮、1-227+lancotrione、1-227+双唑草酮、1-227+环吡氟草酮、1-227+三唑磺草酮、1-227+苯唑氟草酮、1-227+磺酰草吡唑、1-227+吡唑特、1-227+吡草酮、1-227+tolpyralate、1-227+fenquitrione、1-227+异噁唑草酮、1-227+氯氟吡氧乙酸或其酯、1-227+氯氟吡啶酯、1-227+氯氟吡啶酯、1-227+二氯喹啉酸、1-227+氯甲喹啉酸、1-227+2 甲 4 氯或其盐/酯、1-227+2-甲基-4-氯苯氧丙酸或其盐/酯、1-227+MCPB 或其盐/酯、1-227+2,4-D 或其盐/酯、1-227+2,4-滴丙酸或其盐/酯、1-227+2,4-DB 或其盐/酯、1-227+麦草畏、1-227+氯氟吡啶酸、1-227+三氯吡氧乙酸、1-227+二氯吡啶酸、1-227+绿草定、1-227+氟咯草酮、1-227+呋草酮、1-227+吡氟酰草胺、1-227+氟吡酰草胺、1-227+氟丁酰草胺、1-227+氟草敏、1-227+氟啶草酮。

1-228+磺草酮、1-228+硝磺草酮、1-228+苯唑草酮、1-228+环磺酮、1-228+氟吡草酮、1-228+呋喃磺草酮、1-228+双环磺草酮、1-228+lancotrione、1-228+双唑草酮、1-228+环吡氟草酮、1-228+三唑磺草酮、1-228+苯唑氟草酮、1-228+磺酰草吡唑、1-228+吡唑特、1-228+吡草酮、1-228+tolpyralate、1-228+fenquitrione、1-228+异噁唑草酮、1-228+氯氟吡氧乙酸或其酯、1-228+氯氟吡啶酯、1-228+氯氟吡啶酯、1-228+二氯喹啉酸、1-228+氯甲喹啉酸、1-228+2 甲 4 氯或其盐/酯、1-228+2-甲基-4-氯苯氧丙酸或其盐/酯、1-228+MCPB 或其盐/酯、1-228+2,4-D 或其盐/酯、1-228+2,4-滴丙酸或其盐/酯、1-228+2,4-DB 或其盐/酯、1-228+麦草畏、1-228+氯氟吡啶酸、1-228+三氯吡氧乙酸、1-228+二氯吡啶酸、1-228+绿草定、1-228+氟咯草酮、1-228+呋草酮、1-228+吡氟酰草胺、1-228+氟吡酰草胺、1-228+氟丁酰草胺、1-228+氟草敏、1-228+氟啶草酮。

1-229+磺草酮、1-229+硝磺草酮、1-229+苯唑草酮、1-229+环磺酮、1-229+氟吡草酮、1-229+呋喃磺草酮、1-229+双环磺草酮、1-229+lancotrione、1-229+双唑草酮、1-229+环吡氟草酮、1-229+三唑磺草酮、1-229+苯唑氟草酮、1-229+磺酰草吡唑、1-229+吡唑特、1-229+吡草酮、1-229+tolpyralate、1-229+fenquitrione、1-229+异噁唑草酮、1-229+氯氟吡氧乙酸或其酯、1-229+氯氟吡啶酯、1-229+氯氟吡啶酯、1-229+二氯喹啉酸、1-229+氯甲喹啉酸、1-229+2 甲 4 氯或其盐/酯、1-229+2-甲基-4-氯苯氧丙酸或其盐/酯、1-229+MCPB 或其盐/酯、1-229+2,4-D 或其盐/酯、1-229+2,4-滴丙酸或其盐/酯、1-229+2,4-DB 或其盐/酯、1-229+麦草畏、1-229+氯氟吡啶酸、1-229+三氯吡氧乙酸、1-229+二氯吡啶酸、1-229+绿草定、1-229+氟咯草酮、1-229+呋草酮、1-229+吡氟酰草胺、1-229+氟吡酰草胺、1-229+氟丁酰草胺、1-229+氟草敏、1-229+氟啶草酮。

氟啶草酮。

1-230+磺草酮、1-230+硝磺草酮、1-230+苯唑草酮、1-230+环磺酮、1-230+氟吡草酮、1-230+呋喃磺草酮、1-230+双环磺草酮、1-230+lancotrione、1-230+双唑草酮、1-230+环吡氟草酮、1-230+三唑磺草酮、1-230+苯唑氟草酮、1-230+磺酰草吡唑、1-230+吡唑特、1-230+吡草酮、1-230+tolpyralate、1-230+fenquitrione、1-230+异噁唑草酮、1-230+氯氟吡氧乙酸或其酯、1-230+氯氟吡啶酯、1-230+氯氟吡啶酯、1-230+二氯喹啉酸、1-230+氯甲喹啉酸、1-230+2-甲4-氯或其盐/酯、1-230+2-甲基-4-氯苯氧丙酸或其盐/酯、1-230+MCPB 或其盐/酯、1-230+2,4-D 或其盐/酯、1-230+2,4-滴丙酸或其盐/酯、1-230+2,4-DB 或其盐/酯、1-230+麦草畏、1-230+氯氟吡啶酸、1-230+三氯吡氧乙酸、1-230+二氯吡啶酸、1-230+绿草定、1-230+氟咯草酮、1-230+呋草酮、1-230+吡氟酰草胺、1-230+氟吡酰草胺、1-230+氟丁酰草胺、1-230+氟草敏、1-230+氟啶草酮。

其中，采用茎叶处理法测定上述部分 (i) 与 (ii) 的混配对杂草的实际防效，即待杂草处于 3-4 叶期，手动喷雾器，兑水量 30 公斤/667m²，采用茎叶喷雾均匀喷雾。处理后 20 天调查，并用 Gowing 法计算各处理混合组合的理论鲜重抑制率 ($E_0 = X + Y - X * Y / 100$)，然后与实测抑制率 (E) 相比较，评价二者混用对杂草的联合作用类型，当 E-E₀ 值大于 10% 为增效作用、小于 -10% 为拮抗作用、在 -10% ~ 10% 之间为加成作用。并根据实际防效和除草剂特点、配方的平衡性等因素确定最佳配比。式中 X 为活性成分 A 用量为 P 时的鲜重抑制率；Y 为活性成分 B 用量为 Q 时的鲜重抑制率。统计结果见下表 6。

表 6. (i) 与 (ii) 混配对杂草的实际防效及联合作用评价 (Gowing 法)

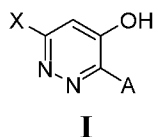
组分 (i) /化合物 序号	组分 (ii)	(i)+(ii) g a.i./ha	杂草 类型	(i) 对应 剂量单用 防效 (%)	(ii) 对应 剂量单用 防效 (%)	E (%)	E ₀ (%)	E-E ₀ (%)
1	磺草酮	30+50	苘麻	20	30	100	44	56
1	硝磺草酮	30+30	苘麻	20	40	100	52	48
1	苯唑草酮	30+5	苘麻	20	40	100	52	48
1	环磺酮	30+15	苘麻	20	30	100	44	56
1	氟吡草酮	30+15	苘麻	20	40	100	52	48
1	呋喃磺草酮	30+50	苘麻	20	40	80	52	28
1	双环磺草酮	30+150	苘麻	20	50	100	60	40
1	lancotrione	30+50	苘麻	20	40	100	52	48
1	双唑草酮	30+5	播娘蒿	20	40	100	52	48
1	环吡氟草酮	30+30	苘麻	20	30	100	44	56

1	三唑磺草酮	30+30	苘麻	20	30	100	44	56
1	苯唑氟草酮	30+15	苘麻	20	40	100	52	48
1	磺酰草吡唑	30+15	苘麻	20	50	100	60	40
1	吡草酮	30+150	苘麻	20	40	100	52	48
1	tolpyralate	30+5	苘麻	20	50	100	60	40
1	异噁唑草酮	30+30	苘麻	20	30	100	44	56
1	氯氟吡氧乙酸	30+30	猪殃殃	20	40	80	52	28
1	氟氯吡啶酯	30+2	苘麻	20	40	100	52	48
1	氯氟吡啶酯	30+2	苘麻	20	45	100	56	44
1	二氯喹啉酸	30+50	猪殃殃	20	50	80	60	20
1	2 甲 4 氯钠盐	30+60	播娘蒿	20	40	80	52	28
1	2-甲基-4-氯苯 氧丙酸	30+100	播娘蒿	20	30	75	44	31
1	MCPB	30+200	播娘蒿	20	40	85	52	33
1	2,4-D 异辛酯	30+50	播娘蒿	20	40	85	52	33
1	2,4-滴丙酸	30+100	播娘蒿	20	40	100	52	48
1	2,4-DB	30+200	播娘蒿	20	50	90	60	30
1	麦草畏	30+10	播娘蒿	20	30	75	44	31
1	氯氟吡啶酸	30+50	苘麻	20	40	80	52	28
1	三氯吡氧乙酸	30+50	苘麻	20	40	70	52	18
1	二氯吡啶酸	30+50	牛膝菊	30	40	85	58	27
1	绿草定	30+50	苘麻	20	35	75	48	27
1	氟咯草酮	30+100	猪殃殃	20	40	90	52	38
1	吡草酮	30+100	猪殃殃	20	35	85	48	37
1	吡氟酰草胺	30+100	婆婆纳	30	45	90	61.5	28.5
1	氟吡酰草胺	30+50	苘麻	20	30	85	44	41
1	氟丁酰草胺	30+200	苘麻	20	40	100	52	48
1	氟草敏	30+300	苘麻	20	50	85	60	25
1	氟啶草酮	30+100	苘麻	20	45	85	56	29

同时经过很多测试发现,本发明中的其他组分(i)与组分(ii)混配同样能够产生类似的除草效果。另外,本发明所述化合物及其组合物很多对结缕草、狗牙根、高羊茅、早熟禾、黑麦草、海滨雀稗等禾本科草坪有很好的选择性,能防除很多关键禾本科杂草以及阔叶杂草。对不同施药方式下的小麦、玉米、水稻、甘蔗、大豆、棉花、油菜、马铃薯、果树、蔬菜等测试也显示出极好的选择性和商业价值。

权 利 要 求 书

1、一种如通式 I 所示的吡嗪醇类化合物或其衍生物:



其中, X 代表卤代烷基、氰基、烷基、烷氧基、卤代烷氧基、 $R_1R_2N-(C=O)-$ 、 R_1R_2N- 、羟基、未取代或取代的芳基;

A 代表未取代或取代的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基以及未取代或取代的芳基、杂芳基或脂杂环基;

所述“取代的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基”是指被选自以下基团中的一种或多种所取代: 卤素, 氰基, 硝基, 叠氮基, 未取代或取代的芳基、杂芳基,
 $-(CH_2)_n-O-(CH_2)_p-$, $-(CH_2)_n-S-(CH_2)_p-$, $-(CH_2)_n-NR_3-(CH_2)_p-$, $R-O-$, $R-O-(CH_2)_p-O-$,
 $R-O-(CH_2)_p-S-$, $R-S-$, $R-S-(CH_2)_p-O-$, $R-S-(CH_2)_p-S-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,
 $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-(C=O)-$, $R-(C=S)-$, $R-(C=O)-(CH_2)_n-O-$,
 $R-(C=S)-(CH_2)_n-S-$, $R-(C=O)-(CH_2)_n-S-$, $R-(C=S)-(CH_2)_n-O-$, $R-SO-(CH_2)_n-(O)_m-$,
 $R-SO-(CH_2)_n-(S)_m-$, $R-SO-(CH_2)_n-(NR_3)_m-$, $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-(S)_m-$,
 $R-SO_2-(CH_2)_n-(NR_3)_m-$, R_1R_2N- , $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(O)_m-$,
 $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(NR_3)_m-$,
 $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-$
 $(C=O)-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(S)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(NR_3)_m-$, $R_1R_2P(O)-(O)_m-$, $R_1R_2R_3SiO-$, $R_1R_2R_3Si-(CH=CH)_m-$,
 $R_1R_2C=N-(O)_m-$, $R_1R_2C=N-NH-$;

所述“取代的芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代:
 卤素, 氰基, 硝基, 叠氮基, 含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环
 烷基烷基, 未取代或取代的芳基、芳基烷基、杂芳基、杂芳基烷基、脂杂环基或脂杂环基烷
 基, $R-O-(CH_2)_n-$, $R-O-(CH_2)_p-O-(CH_2)_q-$, $R-O-(CH_2)_p-S-(CH_2)_q-$, $R-S-(CH_2)_n-$,
 $R-S-(CH_2)_p-O-(CH_2)_q-$, $R-S-(CH_2)_p-S-(CH_2)_q-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,

$R-O-(CH_2)_n-(C=S)-(CH_2)_q-(S)_m-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$,
 $R-S-(CH_2)_n-(C=S)-(CH_2)_q-(O)_m-$, $R-(C=O)-(CH_2)_n-$, $R-(C=S)-(CH_2)_n-$,
 $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$, $R-(C=S)-(CH_2)_n-S-(CH_2)_q-$, $R-(C=O)-(CH_2)_n-S-(CH_2)_q-$,
 $R-(C=S)-(CH_2)_n-O-(CH_2)_q-$, $R-SO-(CH_2)_n-(O)_m-$, $R-SO-(CH_2)_n-(S)_m-$, $R-SO-(CH_2)_n-(NR_3)_m-$,
 $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-(S)_m-$, $R-SO_2-(CH_2)_n-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-$,
 $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(S)_m-$,
 $R_1R_2N-(CH_2)_n-O-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$,
 $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-(NR_3)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(S)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(NR_3)_m-$, $R_1R_2PO_3-(O)_m-(CH_2)_q-$, $R_1R_2R_3SiO-(CH_2)_q-$,
 $R_1R_2R_3Si-(CH=CH)_m-(CH_2)_q-$, $R_1R_2C=N-(O)_m-(CH_2)_n-$, $R_1R_2C=N-NH-(CH_2)_n-$;

m 为 0 或 1, n 、 q 分别代表 0~8 之间的整数, p 代表 1~8 之间的整数;

R 代表氢, 含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基, 以及未取代或取代的芳基、芳基烷基、杂芳基、杂芳基烷基;

R_1 、 R_2 、 R_3 分别独立地代表氢, 硝基, 羟基, 氨基, 含有或不含有卤素的烷基、烯基、炔基、环烷基、环烯基、环烷基烷基、烷氧基、烯基氧基、炔基氧基、环烷基氧基、烷氧基烷基、烷氧基羰基、烷硫基羰基、烷基磺酰基、烷基磺酰基烷基、烷基羰基、烷基羰基烷基、烷基酰氧基、烷基氨基、烷基氨基羰基、烷氧基氨基羰基、烷氧基羰基烷基、烷氨基羰基烷基、三烷基甲硅烷基、二烷基膦酰基, 以及未取代或取代的芳基、芳基烷基、芳基氧基、芳基烷基氧基、芳基氧基烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基烷基、杂芳基氧基、杂芳基烷基氧基、杂芳基氧基烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基烷基、脂杂环基氧基、脂杂环基烷基氧基、脂杂环基氧基烷基、脂杂环基羰基、脂杂环基磺酰基; 或者 R_1R_2N -形成五元或六元杂环基。

2、根据权利要求 1 所述的吡嗪醇类化合物或其衍生物, 其中,

X 代表卤代 C_{1-8} 烷基、氰基、 C_{1-8} 烷基、 C_{1-8} 烷氧基、卤代 C_{1-8} 烷氧基、 $R_1R_2N-(C=O)-$ 、 R_1R_2N- 、羟基、未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{1-8} 烷氧基、 C_{1-8} 烷基羰基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基氨基或 C_{1-8} 烷基酰氧基中的基团所取代的芳基;

A 代表未取代或取代的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基;

所述“取代的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{1-8} 烷氧基、 C_{1-8} 烷基羰基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基氨基或 C_{1-8} 烷基酰氧基中的基团所取代的芳基、杂芳基， $-(CH_2)_n-O-(CH_2)_p-$ ， $-(CH_2)_n-S-(CH_2)_p-$ ， $-(CH_2)_n-NR_3-(CH_2)_p-$ ， $R-O-$ ， $R-O-(CH_2)_p-O-$ ， $R-O-(CH_2)_p-S-$ ， $R-S-$ ， $R-S-(CH_2)_p-O-$ ， $R-S-(CH_2)_p-S-$ ， $R-O-(C=O)-(CH_2)_q-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-$ ， $R-S-(C=S)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_n-(C=S)-(S)_m-$ ， $R-S-(CH_2)_n-(C=S)-$ ， $R-O-(C=O)-(CH_2)_q-(S)_m-$ ， $R-O-(CH_2)_n-(C=O)-(S)_m-$ ， $R-O-(C=S)-(CH_2)_q-(O)_m-$ ， $R-O-(CH_2)_n-(C=S)-(O)_m-$ ， $R-O-(CH_2)_n-(C=S)-$ ， $R-S-(C=O)-(CH_2)_q-(O)_m-$ ， $R-S-(CH_2)_n-(C=O)-(O)_m-$ ， $R-S-(CH_2)_n-(C=O)-$ ， $R-O-(C=S)-(CH_2)_q-(S)_m-$ ， $R-O-(CH_2)_n-(C=S)-(S)_m-$ ， $R-S-(C=O)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_n-(C=O)-(S)_m-$ ， $R-S-(C=S)-(CH_2)_q-(O)_m-$ ， $R-S-(CH_2)_n-(C=S)-(O)_m-$ ， $R-(C=O)-$ ， $R-(C=S)-$ ， $R-(C=O)-O-$ ， $R-(C=S)-S-$ ， $R-(C=O)-S-$ ， $R-(C=S)-O-$ ， $R-SO-(O)_m-$ ， $R-SO-(S)_m-$ ， $R-SO-(NR_3)_m-$ ， $R-SO_2-(O)_m-$ ， $R-SO_2-(S)_m-$ ， $R-SO_2(NR_3)_m-$ ， R_1R_2N- ， $R_1R_2N-O-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_n-O-$ ， $R_1R_2N-O-(CH_2)_q-(S)_m-$ ， $R_1R_2N-O-(CH_2)_q-(NR_3)_m-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-(O)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(S)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-(S)_m-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(NR_3)_m-$ ， $R_1R_2N-(CH_2)_n-(C=O)-(NR_3)_m-$ ， $R_1R_2N-SO_2-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-(O)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-$ ， $R_1R_2N-SO_2-(CH_2)_q-(S)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-(S)_m-$ ， $R_1R_2N-SO_2-(CH_2)_q-(NR_3)_m-$ ， $R_1R_2N-(CH_2)_n-SO_2-(NR_3)_m-$ ， $R_1R_2P(O)-$ ， $R_1R_2R_3SiO-$ ， $R_1R_2R_3Si-(CH=CH)_m-$ ， $R_1R_2C=N-(O)_m-$ ， $R_1R_2C=N-NH-$ ；

所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，含有或不含有卤素的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{1-8} 烷氧基、 C_{1-8} 烷基羰基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基氨基或 C_{1-8} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-8} 烷基、杂芳基、杂芳基 C_{1-8} 烷基、脂杂环基或脂杂环基 C_{1-8} 烷基， $R-O-(CH_2)_n-$ ， $R-O-(CH_2)_p-O-(CH_2)_q-$ ， $R-O-(CH_2)_p-S-(CH_2)_q-$ ， $R-S-(CH_2)_n-$ ， $R-S-(CH_2)_p-O-(CH_2)_q-$ ，

$R-S-(CH_2)_p-S-(CH_2)_q-$, $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$, $R-S-(CH_2)_n-(C=S)-(CH_2)_q-$,
 $R-O-(CH_2)_n-(C=S)-(CH_2)_q-$, $R-S-(CH_2)_n-(C=O)-(CH_2)_q-$, $R-S-(C=S)-(CH_2)_q-(S)_m-$,
 $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$, $R-O-(C=S)-(CH_2)_q-(O)_m-$, $R-S-(C=O)-(CH_2)_q-(O)_m-$,
 $R-O-(C=S)-(CH_2)_q-(S)_m-$, $R-S-(C=O)-(CH_2)_q-(S)_m-$, $R-S-(C=S)-(CH_2)_q-(O)_m-$,
 $R-S-(CH_2)_n-(C=S)-(S)_m-$, $R-O-(CH_2)_n-(C=S)-(O)_m-$, $R-S-(CH_2)_n-(C=O)-(O)_m-$,
 $R-O-(CH_2)_n-(C=S)-(S)_m-$, $R-S-(CH_2)_n-(C=O)-(S)_m-$, $R-S-(CH_2)_n-(C=S)-(O)_m-$,
 $R-(C=O)-(CH_2)_n-$, $R-(C=S)-$, $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$, $R-(C=S)-(CH_2)_n-S-$,
 $R-(C=O)-(CH_2)_n-S-$, $R-(C=S)-(CH_2)_n-O-$, $R-(C=S)-S-(CH_2)_q-$, $R-(C=O)-S-(CH_2)_q-$,
 $R-(C=S)-O-(CH_2)_q-$, $R-SO-(O)_m-$, $R-SO-(S)_m-$, $R-SO-(NR_3)_m-$, $R-SO_2-(CH_2)_n-(O)_m-$,
 $R-SO_2-(S)_m-$, $R-SO_2-(CH_2)_n-(NR_3)_m-$, $R-SO-(CH_2)_n-$, $R_1R_2N-(CH_2)_n-$,
 $R_1R_2N-(CH_2)_n-O-(CH_2)_q-$, $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(CH_2)_q-$,
 $R_1R_2N-(CH_2)_n-(C=O)-(O)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(S)_m-$, $R_1R_2N-(CH_2)_n-(C=O)-(NR_3)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(S)_m-$, $R_1R_2N-(CH_2)_n-SO_2-(NR_3)_m-$,
 $R_1R_2N-(C=O)-(CH_2)_n-(O)_m-$, $R_1R_2N-(C=O)-(CH_2)_n-(S)_m-$, $R_1R_2N-(C=O)-(CH_2)_n-(NR_3)_m-$,
 $R_1R_2N-SO_2-(CH_2)_q-(S)_m-$, $R_1R_2N-SO_2-(CH_2)_q-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-O-$, $R_1R_2N-O-(CH_2)_q-$,
 $R_1R_2P(O)-(O)_m-$, $R_1R_2R_3SiO-$, $R_1R_2R_3Si-(CH=CH)_m-$, $R_1R_2C=N-(O)_m-$, $R_1R_2C=N-NH-$;

m 为 0 或 1, n 、 q 分别代表 0~6 之间的整数, p 代表 1~6 之间的整数;

R 代表氢, 含有或不含有卤素的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基, 以及未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{1-8} 烷氧基、 C_{1-8} 烷基羰基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基氨基或 C_{1-8} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-8} 烷基、杂芳基、杂芳基 C_{1-8} 烷基;

R_1 、 R_2 、 R_3 分别独立地代表氢, 硝基, 羟基, 氨基, 含有或不含有卤素的 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{1-8} 烷氧基、 C_{2-8} 烯基氧基、 C_{2-8} 炔基氧基、 C_{3-8} 环烷基氧基、 C_{1-8} 烷氧基 C_{1-8} 烷基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基羰基 C_{1-8} 烷基、 C_{1-8} 烷硫基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基磺酰基 C_{1-8} 烷基、 C_{1-8} 烷基羰基、 C_{1-8} 烷基酰氧基、 C_{1-8} 烷基氨基、 C_{1-8} 烷基氨基羰基、 C_{1-8} 烷氧基氨基羰基、 C_{1-8} 烷氧基羰基 C_{1-8} 烷基、 C_{1-8} 烷基羰基 C_{1-8} 烷基、三 C_{1-8} 烷基甲硅烷基、二 C_{1-8} 烷基膦酰基, 以及未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-8} 烷基、 C_{3-8} 环烷基、 C_{3-8} 环烯基、 C_{3-8} 环烷基 C_{1-8} 烷基、 C_{2-8} 烯基、 C_{2-8} 炔

基、 C_{1-8} 烷氧基、 C_{1-8} 烷基羰基、 C_{1-8} 烷氧基羰基、 C_{1-8} 烷基磺酰基、 C_{1-8} 烷基氨基或 C_{1-8} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-8} 烷基、芳基氧基、芳基 C_{1-8} 烷基氧基、芳基氧基 C_{1-8} 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C_{1-8} 烷基、杂芳基氧基、杂芳基 C_{1-8} 烷基氧基、杂芳基氧基 C_{1-8} 烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基 C_{1-8} 烷基、脂杂环基氧基、脂杂环基 C_{1-8} 烷基氧基、脂杂环基氧基 C_{1-8} 烷基、脂杂环基羰基、脂杂环基磺酰基；或者 R_1R_2N -形成五元或六元杂环基；

所述衍生物是指农业上可接受的盐或通式 I 中吡嗪环 4 位上的羟基衍生物。

3、根据权利要求 1 或 2 所述的吡嗪醇类化合物或其衍生物，其中，

X 代表卤代 C_{1-6} 烷基；

A 代表未取代或取代的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基；

所述“取代的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，未取代或被 1~3 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、杂芳基， $-(CH_2)_n-O-$ ， $-(CH_2)_n-S-$ ， $-(CH_2)_n-NR_3-$ ， $R-O-$ ， $R-O-(CH_2)_p-O-$ ， $R-O-(CH_2)_p-S-$ ， $R-S-$ ， $R-S-(CH_2)_p-O-$ ， $R-S-(CH_2)_p-S-$ ， $R-O-(CH_2)_n-(C=O)-$ ， $R-S-(C=S)-$ ， $R-O-(C=S)-$ ， $R-S-(C=O)-$ ， $R-(C=O)-$ ， $R-(C=S)-$ ， $R-(C=O)-O-$ ， $R-(C=S)-S-$ ， $R-(C=O)-S-$ ， $R-(C=S)-O-$ ， $R-SO-$ ， $R-SO_2-$ ， R_1R_2N- ， R_1R_2N-O- ， $R_1R_2N-(C=O)-$ ， $R_1R_2N-SO_2-$ ， $R_1R_2P(O)-$ ， $R_1R_2R_3SiO-$ ， $R_1R_2R_3Si-(CH=CH)-$ ， $R_1R_2R_3Si-$ ， $R_1R_2C=N-(O)-$ ， $R_1R_2C=N-$ ， $R_1R_2C=N-NH-$ ；

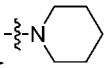
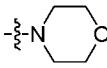
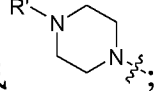
所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基和 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、杂芳基、杂芳基 C_{1-6} 烷基、脂杂环基或脂杂环基 C_{1-6} 烷基， $R-O-(CH_2)_n-$ ， $R-O-(CH_2)_p-O-$ ， $R-O-(CH_2)_p-S-$ ， $R-S-(CH_2)_n-$ ， $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_p-O-$ ， $R-S-(CH_2)_p-S-$ ， $R-S-(C=S)-(S)_m-$ ，

$R-O-(C=S)-(O)_m-$, $R-S-(CH_2)_n-(C=O)-(O)_m-$, $R-O-(C=S)-(S)_m-$, $R-S-(C=O)-(S)_m-$,
 $R-S-(C=S)-(O)_m-$, $R-S-(C=S)-(CH_2)_q-$, $R-O-(C=S)-(CH_2)_q-$, $R-S-(C=O)-(CH_2)_q-$,
 $R-S-(CH_2)_n-(C=S)-$, $R-O-(CH_2)_n-(C=S)-$, $R-S-(CH_2)_n-(C=O)-$, $R-(C=O)-(CH_2)_n-$, $R-(C=S)-$,
 $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$, $R-(C=S)-S-$, $R-(C=O)-S-$, $R-(C=S)-O-$, $R-SO-(CH_2)_n-$,
 $R-SO_2-(CH_2)_n-(O)_m-$, $R-SO_2-(CH_2)_n-(NR_3)_m-$, $R_1R_2N-(CH_2)_n-$, R_1R_2N-O- ,
 $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$, $R_1R_2N-(C=O)-(S)_m-$, $R_1R_2N-(C=O)-(NR_3)_m-$,
 $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-(O)_m-$, $R_1R_2N-(CH_2)_p-(C=O)-$, $R_1R_2N-(CH_2)_p-O-$,
 $R_1R_2N-O-(CH_2)_p-$, $R_1R_2P(O)-$, $R_1R_2R_3SiO-$, $R_1R_2R_3Si-$, $R_1R_2R_3Si-CH=CH-$, $R_1R_2C=N-$,
 $R_1R_2C=N-O-$, $R_1R_2C=N-NH-$;

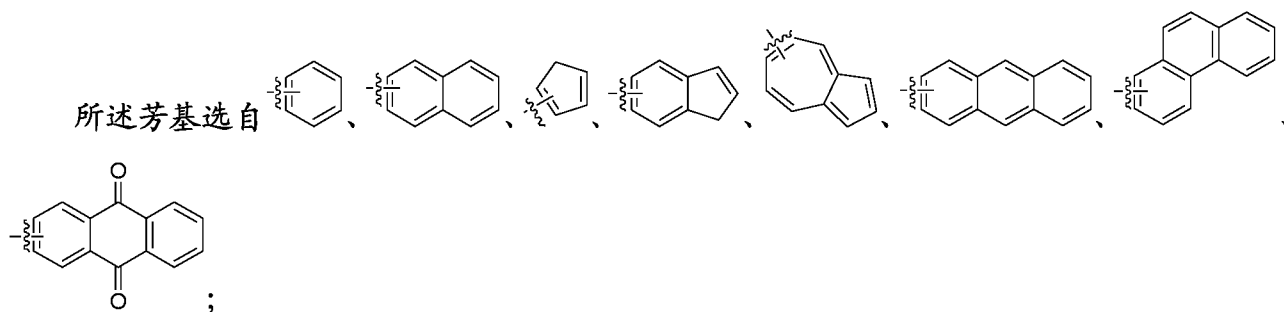
m 为 0 或 1, n 、 q 分别代表 0~4 之间的整数, p 代表 1~4 之间的整数;

R 代表氢, 含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基, 以及未取代或被 1~3 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、杂芳基、杂芳基 C_{1-6} 烷基;

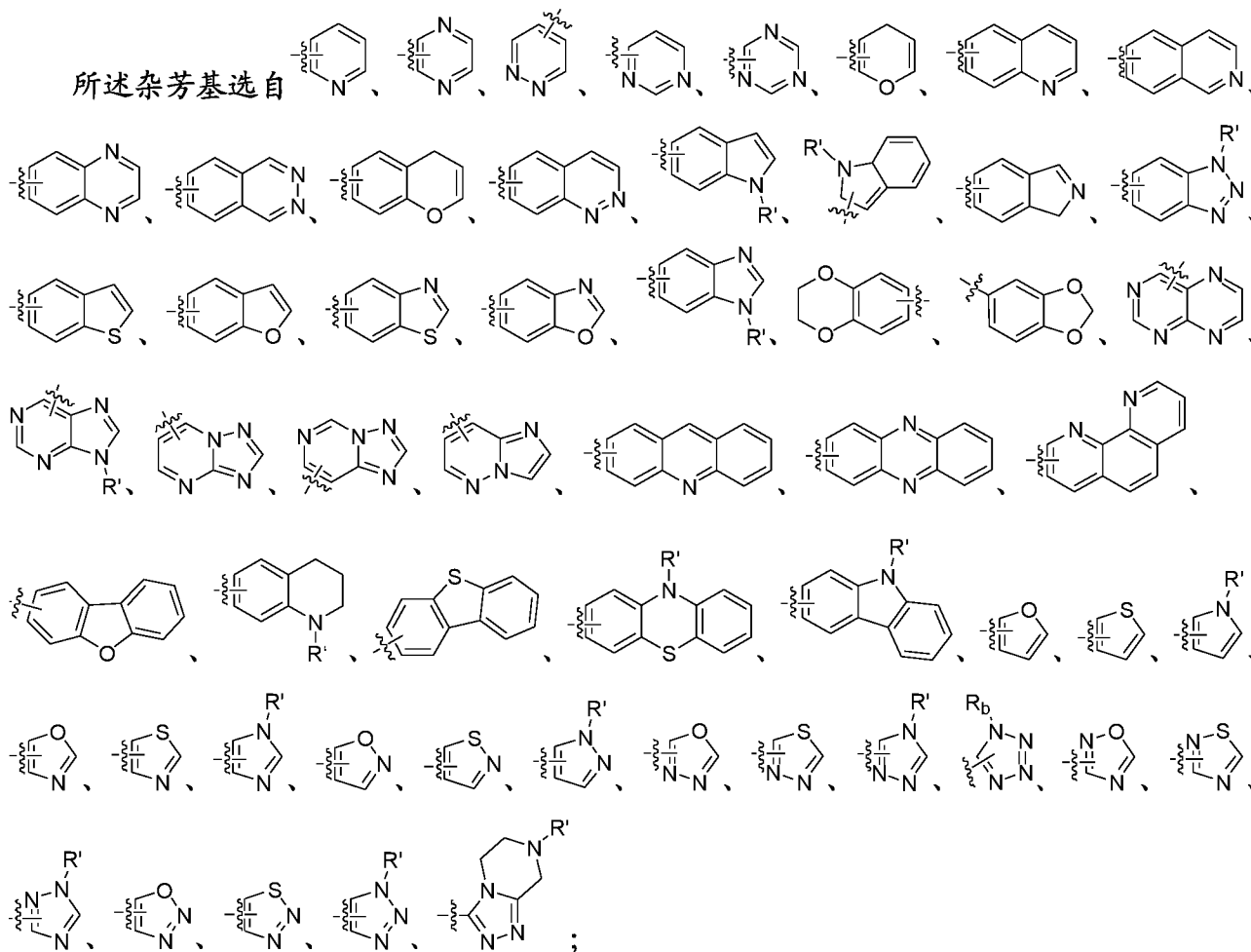
R_1 、 R_2 、 R_3 分别独立地代表氢, 硝基, 羟基, 氨基, 含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{1-6} 烷氧基、 C_{2-6} 烯基氧基、 C_{2-6} 炔基氧基、 C_{3-6} 环烷基氧基、 C_{1-6} 烷氧基 C_{1-6} 烷基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷硫基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基磺酰基 C_{1-6} 烷基、 C_{1-6} 烷基羰基、 C_{1-6} 烷基羰基 C_{1-6} 烷基、 C_{1-6} 烷基酰氧基、 C_{1-6} 烷基氨基、 C_{1-6} 烷基氨基羰基、 C_{1-6} 烷氧基氨基羰基、 C_{1-6} 烷氧基羰基 C_{1-6} 烷基、 C_{1-6} 烷氨基羰基 C_{1-6} 烷基、三 C_{1-6} 烷基甲硅烷基、二 C_{1-6} 烷基膦酰基, 以及未取代或被 1~3 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、芳基氧基、芳基 C_{1-6} 烷基氧基、芳基氧基 C_{1-6} 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C_{1-6} 烷基、杂芳基氧基、杂芳基 C_{1-6} 烷基氧基、杂芳基氧基 C_{1-6} 烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基 C_{1-6} 烷基、脂杂环基氧基、脂杂环基 C_{1-6} 烷基氧基、脂杂环基氧基 C_{1-6} 烷基、脂杂环基羰基、脂杂环基

磺酰基; 或者 R_1R_2N- 代表 ,  或 ;

所述芳基选自

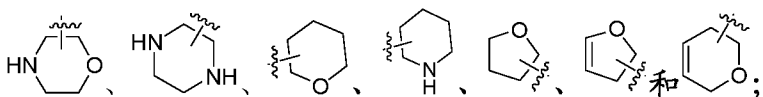


所述杂芳基选自



R' 代表氢, 硝基, 羟基, 氨基, 含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{1-6} 烷氧基、 C_{2-6} 烯基氧基、 C_{2-6} 炔基氧基、 C_{3-6} 环烷基氧基、 C_{1-6} 烷氧基 C_{1-6} 烷基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷硫基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基磺酰基 C_{1-6} 烷基、 C_{1-6} 烷基羰基、 C_{1-6} 烷基羰基 C_{1-6} 烷基、 C_{1-6} 烷基酰氧基、 C_{1-6} 烷基氨基、 C_{1-6} 烷基氨基羰基、 C_{1-6} 烷氧基氨基羰基、 C_{1-6} 烷氧基羰基 C_{1-6} 烷基、 C_{1-6} 烷氨基羰基 C_{1-6} 烷基、三 C_{1-6} 烷基甲硅烷基、二 C_{1-6} 烷基膦酰基, 以及未取代或被 1~3 个独立选自氟、氯、溴、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有氟、氯、溴的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烯基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基或 C_{1-6} 烷基

酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、芳基氧基、芳基 C_{1-6} 烷基氧基、芳基氧基 C_{1-6} 烷基、芳基羰基、芳基磺酰基、杂芳基、杂芳基 C_{1-6} 烷基、杂芳基氧基、杂芳基 C_{1-6} 烷基氧基、杂芳基氧基 C_{1-6} 烷基、杂芳基羰基、杂芳基磺酰基、脂杂环基、脂杂环基 C_{1-6} 烷基、脂杂环基氧基、脂杂环基 C_{1-6} 烷基氧基、脂杂环基氧基 C_{1-6} 烷基、脂杂环基羰基、脂杂环基磺酰基；

所述脂杂环基选自 ;

所述衍生物是指农业上可接受的盐或通式 I 中吡嗪环 4 位上的羟基衍生物，包括其酯、肟、羟胺和醚类衍生物。

4、根据权利要求 1 或 2 所述的吡嗪醇类化合物或其衍生物，其中，

X 代表卤代 C_{1-6} 烷基；

A 代表未取代或取代的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{3-6} 环烷基、 C_{3-6} 环烯基，以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基；

所述“取代的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{3-6} 环烷基、 C_{3-6} 环烯基”是指被选自以下基团中的一种或多种所取代： $R-O-(CH_2)_n-(C=O)-$ 和 $R_1R_2R_3SiO-$ ；

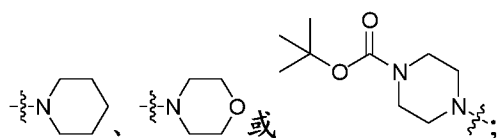
所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代：卤素，氰基，硝基，叠氮基，含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-6} 烷基，未取代或被 1~5 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C_{1-6} 烷基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{1-6} 烷氧基、 C_{1-6} 烷基羰基、 C_{1-6} 烷氧基羰基、 C_{1-6} 烷基磺酰基、 C_{1-6} 烷基氨基和 C_{1-6} 烷基酰氧基中的基团所取代的芳基、芳基 C_{1-6} 烷基、杂芳基、杂芳基 C_{1-6} 烷基、脂杂环基或脂杂环基 C_{1-6} 烷基， $R-O-(CH_2)_n-$ ， $R-O-(CH_2)_p-O-$ ， $R-S-(CH_2)_n-$ ， $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(O)_m-$ ， $R-O-(CH_2)_n-(C=O)-(CH_2)_q-(S)_m-$ ， $R-S-(CH_2)_n-(C=O)-$ ， $R-(C=O)-(CH_2)_n-$ ， $R-(C=O)-(CH_2)_n-O-(CH_2)_q-$ ， $R-SO-(CH_2)_n-$ ， $R-SO_2-(CH_2)_n-(O)_m-$ ， $R-SO_2-(CH_2)_n-(NR_3)_m-$ ， $R_1R_2N-(C=O)-(CH_2)_q-(O)_m-$ ， $R_1R_2N-(C=O)-(NR_3)_m-$ ， $R_1R_2N-(CH_2)_n-$ ， $R_1R_2N-(CH_2)_n-SO_2-(CH_2)_q-$ ， $R_1R_2P(O)-$ ，和 $R_1R_2R_3Si-$ ；

m 为 0 或 1，n、q 分别代表 0~4 之间的整数，p 代表 1~4 之间的整数；

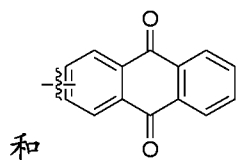
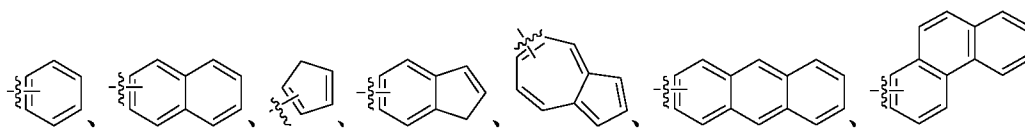
R 代表氢，含有或不含有卤素的 C_{1-6} 烷基、 C_{2-6} 烯基、 C_{2-6} 炔基、 C_{3-6} 环烷基或 C_{3-6} 环烷基 C_{1-6} 烷基，以及未取代或被 1~3 个独立选自卤素中的基团所取代的 5~14 元芳基、5~14 元芳基 C_{1-4} 烷基或 5~14 元杂芳基；

R_1 、 R_2 、 R_3 分别独立地代表氢，硝基，羟基，氨基，含有或不含有卤素的 C_{1-6} 烷基、

C₂₋₆ 烯基、C₂₋₆ 炔基、C₃₋₆ 环烷基、C₁₋₆ 烷氧基、C₁₋₆ 烷氧基 C₁₋₆ 烷基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷基羰基、C₁₋₆ 烷基羰基 C₁₋₆ 烷基、C₁₋₆ 烷基酰氧基，以及未取代或被 1~3 个独立选自卤素、氰基、硝基、羟基、羧基、巯基、氨基以及含有或不含有卤素的 C₁₋₆ 烷基、C₃₋₆ 环烷基、C₃₋₆ 环烷基 C₁₋₆ 烷基、C₂₋₆ 烯基、C₂₋₆ 炔基、C₁₋₆ 烷氧基、C₁₋₆ 烷基羰基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷基磺酰基、C₁₋₆ 烷基氨基和 C₁₋₆ 烷基酰氧基中的基团所取代的 5~14 元芳基、5~14 元芳基 C₁₋₆ 烷基、5~14 元芳基氧基、5~14 元芳基羰基、5~14 元杂芳基、5~14 元杂芳基 C₁₋₆ 烷基、5~14 元杂芳基氧基、5~14 元杂芳基羰基和 5~14 元脂杂环基羰基；或者 R₁R₂N-代表

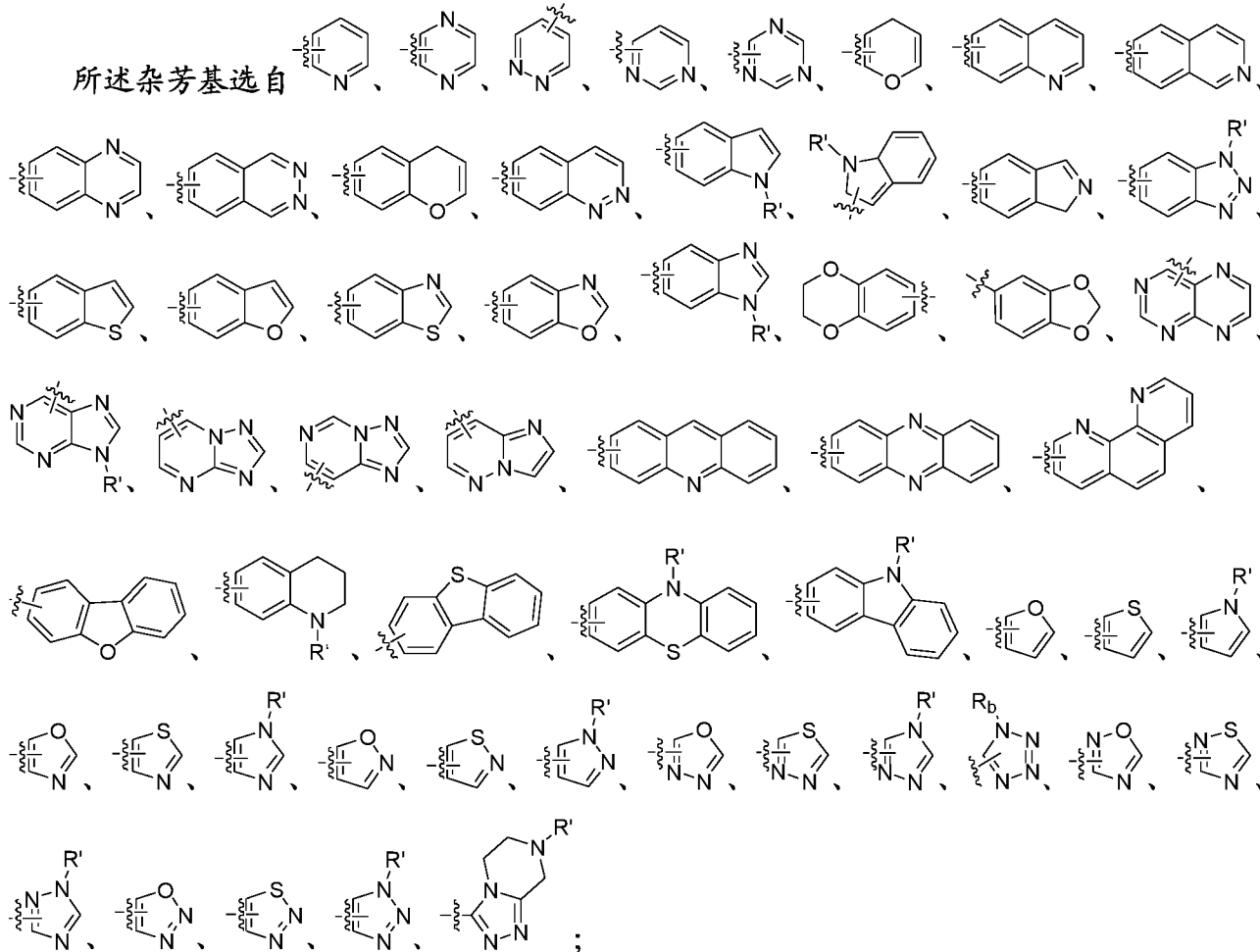


所述芳基选自

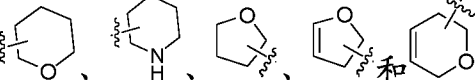


和

所述杂芳基选自



R'代表氢, 含有或不含有氟、氯、溴的 C₁₋₆ 烷基、C₁₋₆ 烷氧基 C₁₋₆ 烷基、C₁₋₆ 烷氧基羰基、C₁₋₆ 烷基羰基, 脂杂环基, 苯基或苄基;

所述脂杂环基选自 ;

所述衍生物是指农业上可接受的盐或通式 I 中吡嗪环 4 位上的羟基衍生物, 包括其酯、肟、羟胺和醚类衍生物。

5、根据权利要求 1-4 任一项所述的吡嗪醇类化合物或其衍生物, 其中,

X 代表卤代 C₁₋₄ 烷基;

A 代表未取代或取代的 C₁₋₄ 烷基、C₂₋₄ 烯基、C₃₋₆ 环烷基、C₃₋₆ 环烯基, 以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基;

所述“取代的 C₁₋₄ 烷基、C₂₋₄ 烯基、C₃₋₆ 环烷基、C₃₋₆ 环烯基”是指被选自以下基团中的一种或多种所取代: R-O-(C=O)-和 R₁R₂R₃SiO-;

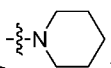
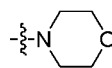
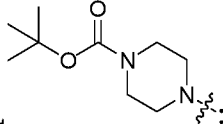
所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代: 氟, 氯, 溴, 碘, 氰基, 硝基, 叠氮基, 含有或不含有氟、氯或溴的 C₁₋₄ 烷基、C₂₋₄ 烯基、C₂₋₄ 炔基、C₃₋₆ 环烷基、C₃₋₆ 环烷基 C₁₋₄ 烷基, 未取代或被 1~3 个独立选自氟、氯、溴、氰基、羟基、以及含有或不含有氟、氯或溴的 C₁₋₄ 烷基、C₁₋₄ 烷氧基、C₁₋₄ 烷氧基羰基、C₁₋₄ 烷基磺酰基和 C₁₋₄ 烷基氨基的基团所取代的芳基、芳基 C₁₋₄ 烷基、杂芳基、杂芳基 C₁₋₄ 烷基或脂杂环基, R-O-(CH₂)_n-, R-O-CH₂-O-, R-S-(CH₂)_n-, R-O-(CH₂)_n-(C=O)-, R-O-(CH₂)_n-(C=O)-O-, R-O-(C=O)-(CH₂)_q-O-, R-O-(CH₂)_n-(C=O)-(CH₂)_q-S-, R-S-(CH₂)_n-(C=O)-, R-(C=O)-(CH₂)_n-, R-(C=O)-O-(CH₂)_q-, R-(C=O)-(CH₂)_n-O-, R-SO-(CH₂)_n-, R-SO₂-(CH₂)_n-(O)_m-, R-SO₂-(CH₂)_n-NR₃-, R₁R₂N-(C=O)-(CH₂)_q-, R₁R₂N-(C=O)-(CH₂)_q-O-, R₁R₂N-(C=O)-(NR₃)_m-, R₁R₂N-(CH₂)_n-, R₁R₂N-(CH₂)_n-SO₂-(CH₂)_q-, R₁R₂P(O)-和 R₁R₂R₃Si-;

m 为 0 或 1, n, q 分别代表 0、1、2 或 3 之间的整数, p 代表 1、2 或 3 之间的整数;

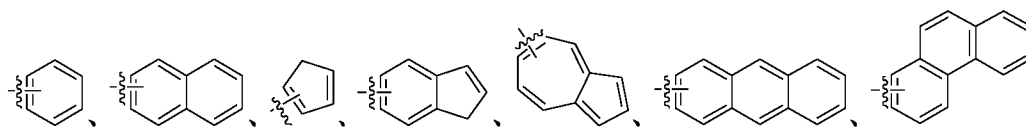
R 代表氢, 含有或不含有卤素的 C₁₋₄ 烷基、C₂₋₄ 烯基、C₂₋₆ 炔基、C₃₋₆ 环烷基或 C₃₋₆ 环烷基 C₁₋₄ 烷基, 以及未取代或被 1~3 个独立选自氟、氯、溴中的基团所取代的 5~14 元芳基、5~14 元芳基 C₁₋₂ 烷基或 5~6 元杂芳基;

R₁、R₂、R₃ 分别独立地代表氢, 含有或不含有氟、氯或溴的 C₁₋₄ 烷基、C₂₋₄ 烯基、C₂₋₄ 炔基、C₃₋₆ 环烷基、C₁₋₄ 烷氧基、C₁₋₄ 烷氧基 C₁₋₄ 烷基、C₁₋₄ 烷氧基羰基、C₁₋₄ 烷基羰基、C₁₋₄ 烷基羰基 C₁₋₄ 烷基、C₁₋₄ 烷基酰氧基, 以及未取代或被 1~3 个独立选自氟、氯、溴、C₁₋₄ 烷基、C₁₋₄ 烷氧基、C₁₋₄ 烷基氨基和 C₃₋₆ 环烷基中的基团所取代的 5~14 元芳基、5~14 元芳

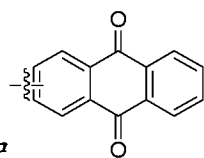
基氧基、5~14 元芳基羰基、5~6 元杂芳基、5~6 元杂芳基 C₁₋₄ 烷基和 5~6 元杂芳基羰基；或

者 R₁R₂N-代表 、 或 ;

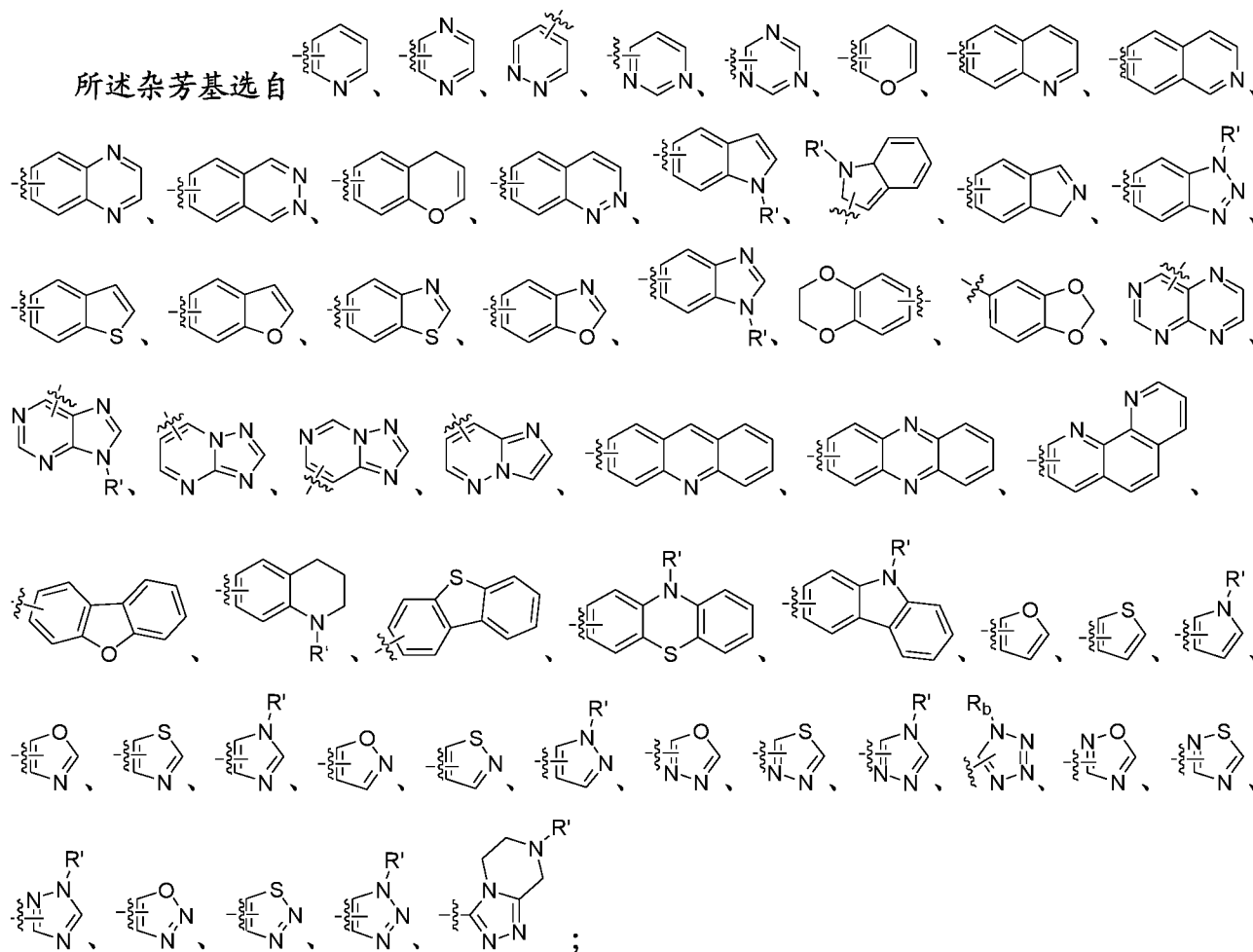
所述芳基选自



和



所述杂芳基选自



R'代表氢，含有或不含有氟、氯、溴的 C₁₋₄ 烷基、C₁₋₄ 烷氧基 C₁₋₄ 烷基、C₁₋₄ 烷氧基羰

基、C₁₋₄ 烷基羰基，



苯基或苄基；

所述脂杂环基选自

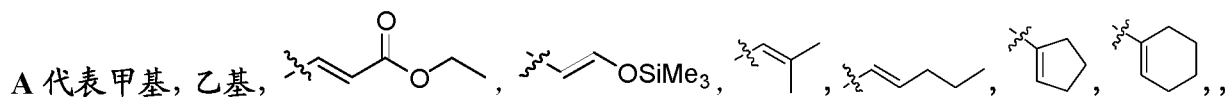


所述衍生物是指农业上可接受的盐或通式 I 中哒嗪环 4 位上的羟基衍生物，包括其酯、

肟、羟胺和醚类衍生物。

6、根据权利要求 1-5 任一项所述的吡嗪醇类化合物及其衍生物，其中，

X 代表 CH_2F 、 CHF_2 、 CF_3 、 CF_2CF_3 ；

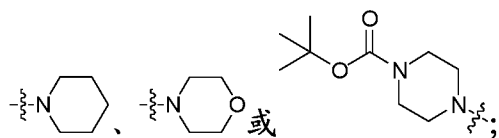


以及未取代或取代的 5~14 元芳基、杂芳基或脂杂环基；

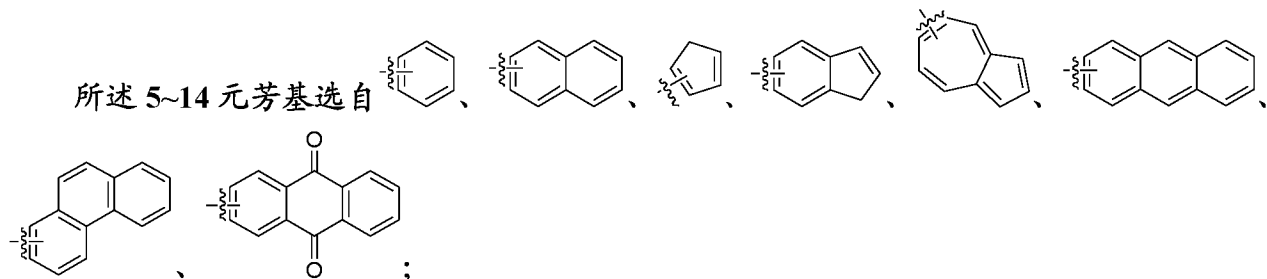
所述“取代的 5~14 元芳基、杂芳基或脂杂环基”是指被选自以下基团中的一种或多种所取代：氟，氯，溴，碘，氰基，硝基，叠氮基，含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-4} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-2} 烷基，未取代或被 1~3 个独立选自氟、氯、溴、氰基、羟基以及含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{1-4} 烷氧基、 C_{1-4} 烷氧基羰基、 C_{1-4} 烷基磺酰基或 C_{1-4} 烷基氨基中的基团所取代的苯基、吡咯基、呋喃基、咪唑基、吡唑基、噁唑基、异噁唑基、噻唑基、噁二唑基、噻二唑基、三唑基、吡啶基、吡嗪基、嘧啶基、𫓧基、四氢吡喃基或噻吩基甲基， R-O- ， R-O-CH_2- ， $\text{R-O-CH}_2\text{CH}_2-$ ， $\text{R-O-CH}_2\text{-O-}$ ， R-O-(C=O)- ， $\text{R-O-CH}_2\text{-(C=O)-}$ ， $\text{R-O-CH}_2\text{-(C=O)-O-}$ ， $\text{R-O-(C=O)-CH}_2\text{-O-}$ ， $\text{R-O-(C=O)-CH}_2\text{CH}_2\text{-O-}$ ， $\text{R-O-(C=O)-CH}_2\text{-S-}$ ， $\text{R-O-CH}_2\text{-(C=O)-S-}$ ， $\text{R-O-CH}_2\text{-(C=O)-CH}_2\text{-S-}$ ， R-S-CH_2- ， R-S- ， R-S-(C=O)- ， $\text{R-S-CH}_2\text{-(C=O)-}$ ， R-(C=O)-CH_2- ， R-(C=O)- ， R-(C=O)-O-CH_2- ， $\text{R-(C=O)-CH}_2\text{-O-}$ ， $\text{R-(C=O)-CH}_2\text{CH}_2\text{-O-}$ ， R-(C=O)-O- ， R-SO-CH_2- ， R-SO- ， $\text{R-SO}_2\text{-CH}_2\text{-O-}$ ， $\text{R-SO}_2\text{-CH}_2-$ ， $\text{R-SO}_2\text{-O-}$ ， R-SO_2- ， $\text{R-SO}_2\text{-CH}_2\text{-NR}_3-$ ， $\text{R-SO}_2\text{-NR}_3-$ ， $\text{R}_1\text{R}_2\text{N-CH}_2-$ ， $\text{R}_1\text{R}_2\text{N-}$ ， $\text{R}_1\text{R}_2\text{N-(C=O)-CH}_2-$ ， $\text{R}_1\text{R}_2\text{N-(C=O)-CH}_2\text{-O-}$ ， $\text{R}_1\text{R}_2\text{N-(C=O)-}$ ， $\text{R}_1\text{R}_2\text{N-(C=O)-NR}_3-$ ， $\text{R}_1\text{R}_2\text{N-CH}_2\text{-SO}_2-$ ， $\text{R}_1\text{R}_2\text{N-CH}_2\text{-SO}_2\text{-CH}_2-$ ， $\text{R}_1\text{R}_2\text{N-SO}_2\text{-CH}_2-$ ， $\text{R}_1\text{R}_2\text{N-SO}_2-$ ， $\text{R}_1\text{R}_2\text{P(O)-}$ 和 $\text{R}_1\text{R}_2\text{R}_3\text{Si-}$ ；

R 代表氢，含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-4} 炔基、 C_{3-6} 环烷基、 C_{3-6} 环烷基 C_{1-2} 烷基，以及未取代或被 1~3 个独立选自氟、氯、溴中的基团所取代的苯基、𫓧基或噻吩基；

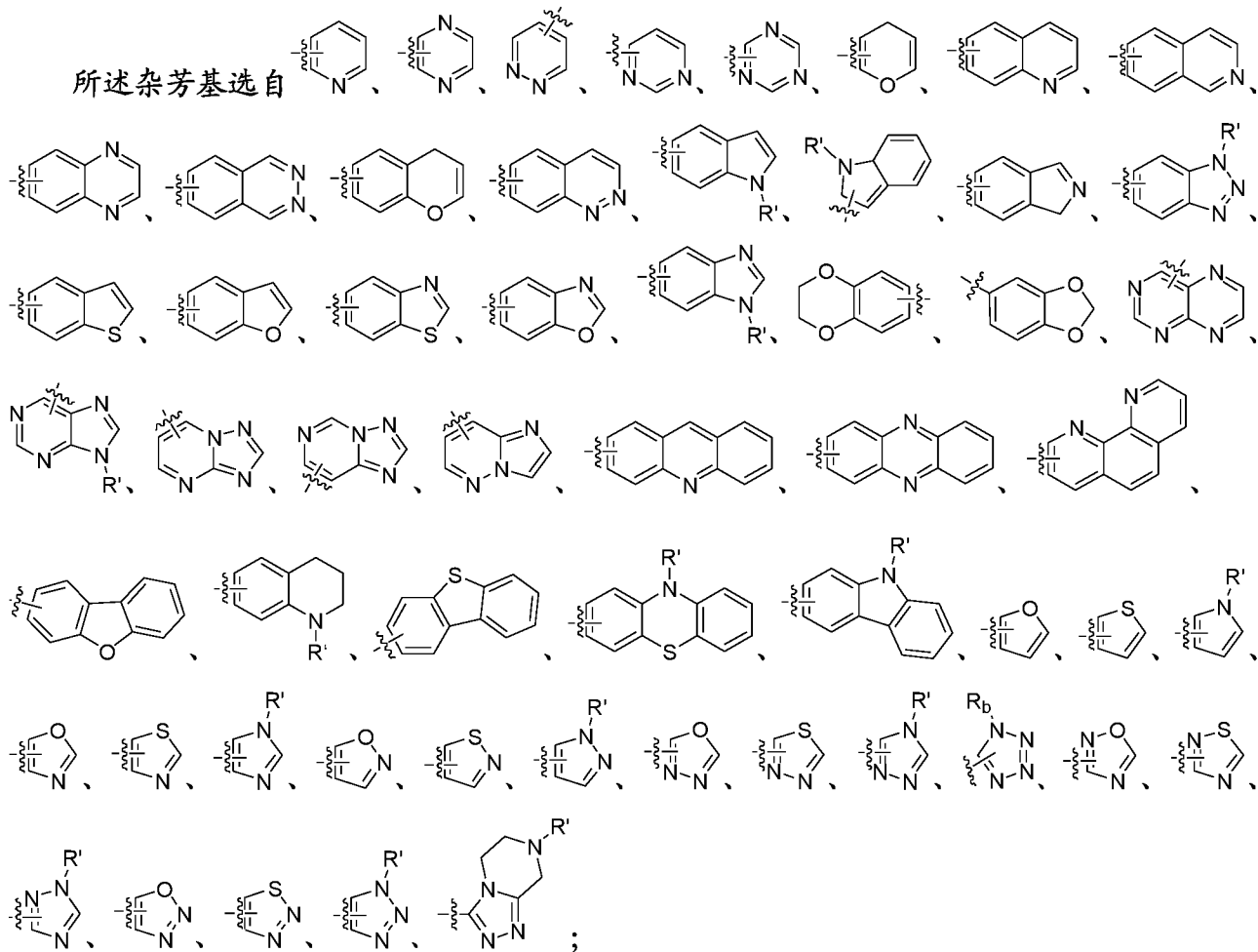
R_1 、 R_2 、 R_3 分别独立地代表氢，含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{2-4} 烯基、 C_{2-4} 炔基、 C_{3-6} 环烷基、 C_{1-4} 烷氧基、 C_{1-4} 烷氧基 C_{1-2} 烷基、 C_{1-4} 烷氧基羰基、 C_{1-4} 烷基羰基、 C_{1-4} 烷基羰基 C_{1-2} 烷基、 C_{1-4} 烷基酰氧基、以及未取代或被 1~3 个独立选自氟、氯、溴、 C_{1-4} 烷基、 C_{3-6} 环烷基、 C_{1-4} 烷氧基和 C_{1-4} 烷基氨基中的基团所取代的苯基、萘基、苯氧基、呋喃基、噻吩基、噻二唑基、噻吩甲基、吡唑甲基、苯甲酰基或吡啶甲酰基；或者 $\text{R}_1\text{R}_2\text{N-}$ 代表



所述 5~14 元芳基选自



所述杂芳基选自



R' 代表氢, 含有或不含有氟、氯、溴的 C_{1-4} 烷基、 C_{1-4} 烷氧基 C_{1-2} 烷基、 C_{1-4} 烷氧基羰

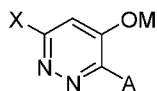
基、 C_{1-4} 烷基羰基, , 苯基或苄基;

所述脂杂环基选自 ;

所述衍生物是指农业上可接受的盐或通式 I 中吡嗪环 4 位上的羟基衍生物, 包括其酯、肟、羟胺和醚类衍生物。

7、权利要求 1-6 任一项所述的吡嗪醇类化合物或其衍生物，其中所述化合物选自表 1 中化合物。

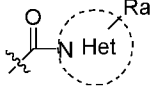
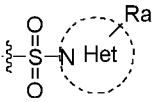
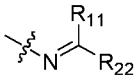
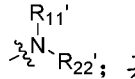
8、权利要求 1-7 任一项所述的吡嗪醇类化合物的衍生物，其具有式 I-1 所示结构：



I-1

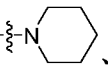
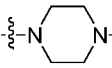
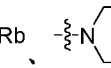
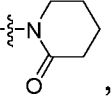
其中，

M 代表未取代或被选自下述的取代基取代的甲（硫）酰基或 C₁₋₁₈ 烷（硫）羰基：卤素，氨基，C₃₋₈ 环烷基，C₁₋₈ 烷氧基羰基，C₁₋₈ 烷羰基氧基，C₁₋₈ 烷羰基，羟基甲基氧磷基，未取代或被卤素或 C₁₋₈ 烷氧基取代的苯基、苯硫基、苯氧基或苄氧基；未取代或被苯基取代的 C₁₋₁₈ 烷氧基（硫）羰基或 C₁₋₁₈ 烷硫基（硫）羰基；C₃₋₈ 环烷基硫基（硫）羰基；苯 C₁₋₈ 烷硫基（硫）羰基；未取代或被选自下述的取代基取代的 C₂₋₈ 烯基（硫）羰基：C₁₋₈ 烷氧基、苯基和卤代苯基；未取代或被选自下述的取代基取代的苯甲（硫）酰基：卤素、羟基、C₁₋₈ 烷基、C₁₋₈ 烷氧基、氰基、卤代 C₁₋₈ 烷氧基、C₁₋₈ 烷羰基氧基、C₁₋₈ 烷羰基胺基、氨基和 1 个或 2 个 C₁₋₈ 烷基取代的氨基；卤代巯基甲酰基；未取代或被选自下述的取代基取代的 3~8 元杂环（硫）羰基：C₁₋₈ 烷基、卤素和 C₁₋₈ 烷硫基；5~14 元的缩合二环或三环式杂环（硫）羰基；未取代或被选自下述的取代基取代的氨基甲（硫）酰基：C₁₋₈ 烷基和 C₁₋₈ 烷氧基；未取代或被卤素、C₁₋₈ 烷基磺酰基取代的 C₁₋₈ 烷基亚砷基、C₁₋₈ 烷基磺酰基或 C₃₋₈ 环烷基磺酰基；未取代或被选自下述的取代基取代的苯基磺酰基、苄基磺酰基或萘基磺酰基：卤素、硝基、C₁₋₈ 烷基、卤代 C₁₋₈ 烷基、卤代 C₁₋₈ 烷氧基、C₁₋₈ 烷羰基、C₁₋₈ 烷基磺酰基、氨基酰基、苯氧基和卤代苯氧基；未取代或被选自下述的取代基取代的 5-10 元芳杂环基磺酰基：C₁₋₈ 烷基和苯氧基；未取代或被卤素取代的 C₁₋₈ 烷基氨基磺酰基；二(C₁₋₈ 烷基)磷酰基；未取代或被选自下述的取代基取代的 C₁₋₁₈ 烷基：C₁₋₈ 烷氧羰基和 C₁₋₈ 烷氧羰基氧基；未取代或被选自

下述的取代基取代的苯基、苄基或苯甲酰基 C₁₋₈ 烷基：卤素和 C₁₋₈ 烷氧基；；
；
；
；其中，

R₁₁ 和 R₂₂ 各自独立地选自氢、未取代或被选自下述的取代基取代的 C₁₋₁₈ 烷基：C₁₋₈ 烷氧基和 C₁₋₈ 烷硫基，和未取代或被卤代 C₁₋₈ 烷基取代的苯基或 5-6 元芳杂环基，或者 R₁₁ 和 R₁₂ 形成 5-6 元饱和碳环或杂环；

R₁₁' 和 R₂₂' 各自独立地代表 C₁₋₁₈ 烷基；

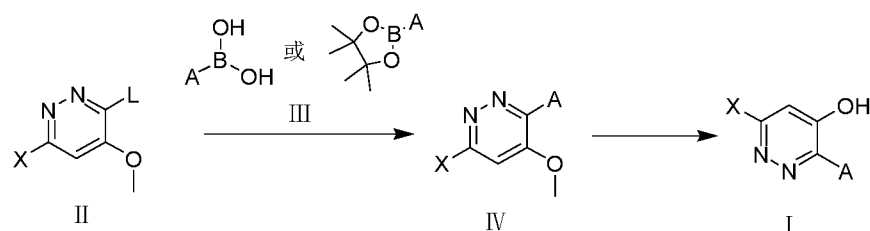
Het 选自 、、 或 ，Ra 和 Rb 独立地代表氢、C₁₋₆ 烷基；X 和 A 的定义如权利要求 1-7 中任一项所述。

9、权利要求 8 的吡嗪醇类化合物的衍生物，选自表 2 中化合物。

10、一种如权利要求 1-7 任意一项所述的吡嗪醇类化合物或其衍生物的制备方法，其特征在于，所述的吡嗪醇类化合物的制备方法包括以下步骤：

- (1) 化合物 II 与化合物 III 发生 Suzuki 反应，制备得到如通式 IV 所示的化合物；
- (2) 将如通式 IV 所示的化合物水解制备得到如通式 I 所示的化合物；

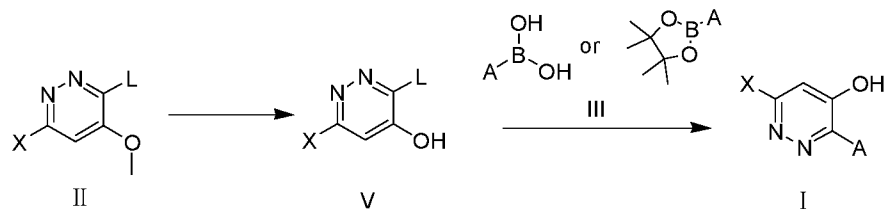
其化学反应方程式如下：



或者包括以下步骤：

- (a) 将化合物 II 水解制备得到如通式 V 所示的化合物；
- (b) V 所示的化合物与 III 所示的化合物发生 Suzuki 反应，制备得到 I 所示的化合物；

其化学反应方程式如下：



L 代表卤素，优选溴，其余各基团定义如权利要求 1-7 中任一项所述。

11、根据权利要求 10 所述的制备方法，其中，各步骤均在 20~150℃ 范围内进行，优选 50~130℃；

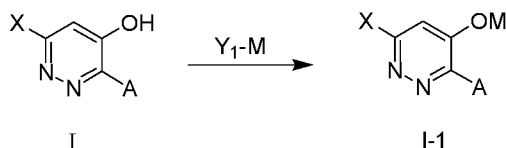
所述步骤(1)和(b)在催化剂、碱和溶剂的存在下进行，所述催化剂为 Pd(dppf)Cl₂CH₂Cl₂、Pd(dba)₂、Pd₂(dba)₃、Pd(PPh₃)₄、PdCl₂、Pd(OAc)₂、Pd(dppf)Cl₂、Pd(PPh₃)₂Cl₂ 或 Ni(dppf)Cl₂，所述碱选自 Et₃N、NaHCO₃、KOAc、K₂CO₃、K₃PO₄、Na₂CO₃、CsF、Cs₂CO₃、t-BuONa、EtONa、KOH 和 NaOH 中的一种或两种以上，所述溶剂为 THF/水、甲苯/水、DMF/水、1,4-二氧六环/水、甲苯/乙醇/水或乙腈/水、THF、甲苯、1,4-二氧六环、乙腈、DMF 体系；

所述步骤(2)和(a)在碱和溶剂的存在下进行或者在三溴化硼、氢溴酸醋酸溶液、盐酸甲醇溶液、或盐酸乙酸乙酯溶液的存在下进行，所述碱优选 NaOH、KOH、醋酸钾、醋酸

钠, 所述溶剂优选水、DMSO。

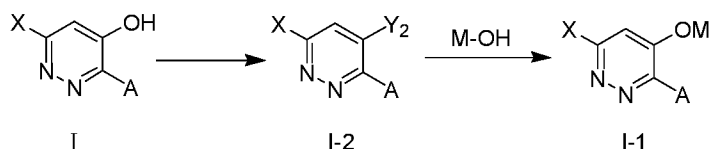
12、权利要求 8 或 9 所述哒嗪醇类化合物的衍生物的制备方法, 其中,

当所述衍生物为酯或醚类衍生物时, 该方法的的化学反应路线如下:



其中, Y_1 代表卤素, 优选氯、溴;

当所述衍生物为肟或羟胺类衍生物时, 该方法的的化学反应路线如下:



其中, Y_2 代表卤素, 优选氯、氟;

其余基团的定义如权利要求 8 或 9 中所述。

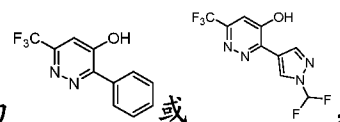
13、权利要求 11 所述的制备方法, 其中制备其酯和醚类衍生物的反应以及制备其肟和羟胺类衍生物的第二步反应均在碱和溶剂的存在下进行, 所述碱选自氢氧化钠、氢氧化钾、碳酸钠、碳酸钾、碳酸氢钠、碳酸铯、三乙胺和二异丙基乙基胺中的一种或两种以上; 所述溶剂为 THF、1,4-二氧六环、甲苯、1,2-二氯乙烷、乙酸乙酯、乙腈、DMF、丙酮、二氯甲烷或氯仿;

制备其肟和羟胺类衍生物的反应中第一步在卤代试剂和溶剂的存在下进行, 所述卤代试剂为 Phenofluor/氟化铯或 POCl_3 , 所述溶剂选自甲苯、1,2-二氯乙烷、DMF 中的一种或两种以上; 所述反应在 $0\sim 120^\circ\text{C}$ 范围内进行, 优选 $20\sim 80^\circ\text{C}$ 。

14、一种除草剂组合物, 包括 (i) 权利要求 1-7 任意一项如通式 I 所示的哒嗪醇类化合物或其衍生物或权利要求 8 或 9 所述的通式 I-1 所示的哒嗪醇类化合物的衍生物; 优选地, 还包括 (ii) 一种或多种另外的除草剂和/或安全剂; 更优选地, 还包括 (iii) 农业化学上可接受的制剂助剂。

15、根据权利要求 14 所述的一种除草剂组合物, 其中, 所述另外的除草剂选自 HPPD 抑制剂、激素类除草剂以及 PDS 抑制剂中的一种; 优选地, HPPD 抑制剂选自磺草酮、硝磺草酮、苯唑草酮、环磺酮、氟吡草酮、呋喃磺草酮、双环磺草酮、lancotrione、双唑草酮、环吡氟草酮、三唑磺草酮、苯唑氟草酮、磺酰草吡唑、吡唑特、吡草酮、tolpyralate、fenquinoatrione 和异噁唑草酮; 激素类除草剂选自氯氟吡氧乙酸及其衍生物、氯氟吡啶酯、氯氟吡啶酯、二氯喹啉酸、氯甲喹啉酸、2 甲 4 氯、2-甲基-4-氯苯氧丙酸、MCPB、2,4-D、2,4-

滴丙酸、2,4-DB、麦草畏、氯氟吡啶酸、三氯吡氧乙酸、二氯吡啶酸以及绿草定及其衍生物，PDS 抑制剂选自氟咯草酮、呋草酮、吡氟酰草胺、氟吡酰草胺、氟丁酰草胺、氟草敏以及氟啶草酮。



16、权利要求 14 或 15 所述的除草剂组合物，所述组分 (i) 为优选地，所述另外的除草剂选自磺草酮、硝磺草酮、苯唑草酮、环磺酮、氟吡草酮、呋喃磺草酮、双环磺草酮、lancotrione、双唑草酮、环吡氟草酮、三唑磺草酮、苯唑氟草酮、磺酰草吡唑、吡草酮、tolpyralate、异噁唑草酮、氯氟吡氧乙酸或其酯、氯氟吡啶酯、氯氟吡啶酯、二氯喹啉酸、2 甲 4 氯或其盐/酯、2-甲基-4-氯苯氧丙酸或其盐/酯、MCPB 或其盐/酯、2,4-D 或其盐/酯、2,4-滴丙酸或其盐/酯、2,4-DB 或其盐/酯、麦草畏、氯氟吡啶酸、三氯吡氧乙酸、二氯吡啶酸、绿草定、氟咯草酮、呋草酮、吡氟酰草胺、氟吡酰草胺、氟丁酰草胺、氟草敏和氟啶草酮中的一种或多种。

17、一种控制有害植物的方法，包括将除草有效量的权利要求 1-7 任意一项所述的吡嗪醇类化合物或其衍生物、权利要求 8 或 9 所述的吡嗪醇类化合物的衍生物或权利要求 14-16 任意一项所述的除草剂组合物施用在所述有害植物上或者其所在区域。

18、如权利要求 1-7 任意一项所述的吡嗪醇类化合物或其衍生物、权利要求 8 或 9 所述的吡嗪醇类化合物的衍生物或权利要求 14-16 任意一项所述的除草剂组合物在控制有害植物上的用途；优选地，所述吡嗪醇类化合物、其衍生物或除草剂组合物用于防除有用作物中的有害植物，所述有用作物为转基因作物或者基因组编辑技术处理过的作物（例如小麦、玉米、水稻、大豆、棉花、油菜、谷子或高粱）；优选地，所述有害植物为单子叶或双子叶有害植物，例如选自反枝苋、蒺藜、婆婆纳、藜、稗草、狗尾草、猪殃殃、苘麻、播娘蒿和牛膝菊。

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/074315

A. CLASSIFICATION OF SUBJECT MATTER

C07D 237/14(2006.01)i; C07D 401/04(2006.01)i; C07D 401/10(2006.01)i; C07D 417/10(2006.01)i; C07D 405/10(2006.01)i; C07D 401/14(2006.01)i; C07D 417/14(2006.01)i; C07D 405/04(2006.01)i; C07D 417/04(2006.01)i; C07D 403/04(2006.01)i; C07D 403/10(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C07D; A01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, CPRSABS, CNKI, DWPI, SIPOABS, CAPLUS, REGISTRY: 哒嗪, pyridazine, 除草剂, herbicide, structure search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Alexandra Feraldi-Xypolia, et al. "Synthesis of Functionalized 4-Fluoropyridazines" <i>Asian J. Org. Chem.</i> , Vol. 6, No. 7, 01 June 2017 (2017-06-01), ISSN: 2193-5807, pp. 927-935	8
A	CN 1543455 A (SANKYO AGRO CO., LTD.) 03 November 2004 (2004-11-03) see entire description	1-18
A	US 5362708 A (AGROLINZ AGRARCHEMIKALIEN) 08 November 1994 (1994-11-08) see entire description	1-18
A	US 5616789 A (MONSANTO CO.) 01 April 1997 (1997-04-01) see entire description	1-18
A	CN 1075477 A (AGROLINZ AGRARCHEMIKALIEN GESELLSCHAFT M.B.H) 25 August 1993 (1993-08-25) see entire description	1-18
A	CN 106316962 A (SHANGHAI INSTITUTE OF ORGANIC CHEMISTRY, CHINESE ACADEMY OF SCIENCES) 11 January 2017 (2017-01-11) see entire description	1-18



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

09 April 2019

Date of mailing of the international search report

06 May 2019

Name and mailing address of the ISA/CN

National Intellectual Property Administration, PRC (ISA/
CN)
No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing
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China

Facsimile No. (86-10)62019451

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2019/074315

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2004284970 A (SANKYO AGRO KK) 14 October 2004 (2004-10-14) see entire description	1-18

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2019/074315

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	1543455	A	03 November 2004	CN	1543455	B	11 July 2012
				KR	100879693	B1	21 January 2009
				EP	1426365	B1	15 July 2009
				JP	WO2003016286	A1	02 December 2004
				KR	20040050061	A	14 June 2004
				WO	03016286	A1	27 February 2003
				ES	2330089	T3	04 December 2009
				EP	1426365	A4	08 December 2004
				US	2010041555	A1	18 February 2010
				EP	1426365	B9	21 October 2009
				US	7964531	B2	21 June 2011
				CA	2457575	C	21 December 2010
				TW	I254708	B	11 May 2006
				US	2005037925	A1	17 February 2005
				EP	1426365	A1	09 June 2004
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				AU	2002327096	B2	22 November 2007
				CA	2457575	A1	27 February 2003
				KR	100910691	B1	04 August 2009
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				PL	289726	A1	18 May 1992
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				PT	97249	B	31 July 1998
				NO	911113	A	07 October 1991
				HU	209622	B	28 September 1994
				GR	3015561	T3	30 June 1995
				EP	0450359	A1	09 October 1991
				AT	397598	B	25 May 1994
				FI	911450	A0	26 March 1991
				CS	9100949	A3	16 December 1992
				CA	2037122	A1	06 October 1991
				PL	166779	B1	30 June 1995
				YU	61291	A	10 May 1994
				JP	H04221302	A	11 August 1992
				IE	66046	B1	13 December 1995
				BG	60602	B1	31 October 1995
				EP	0450359	B1	15 March 1995
				DK	0450359	T3	03 April 1995
				RU	2054871	C1	27 February 1996
				FI	911450	A	06 October 1991
				HU	T56695	A	28 October 1991
				NO	911113	D0	20 March 1991
				ES	2070355	T3	01 June 1995
				IL	97433	A	26 May 1995
				IE	910798	A1	09 October 1991
				RO	109147	B1	30 December 1994
				AT	A80790	A	15 October 1993
				AT	119740	T	15 April 1995

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2019/074315

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
				IL	97433	D0	21 June 1992
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				AU	647687	B2	24 March 1994
				MD	940047	A	31 August 1995
				JP	H069574	A	18 January 1994
				BG	97448	A	24 March 1994
				SI	9300085	A	30 September 1993
				AT	397085	B	25 January 1994
				BR	9300589	A	24 August 1993
				US	5462914	A	31 October 1995
				MX	9300855	A	01 August 1993
				ZA	9300648	B	02 September 1993
				NZ	245706	A	25 November 1994
				AT	A25892	A	15 June 1993
				AU	3302893	A	19 August 1993
				TR	26712	A	15 May 1995
				HR	P930192	A2	31 December 1995
				EP	0556647	A1	25 August 1993
				HU	9300425	D0	28 May 1993
				ZA	9300648	A	02 September 1993
				JO	1744	B1	30 October 1993
				TW	221369	B	01 March 1994
				EE	9400149	A	15 December 1995
				CA	2089451	A1	18 August 1993
				LV	10152	A	20 October 1994
				SK	9593	A3	09 September 1993
				CZ	9300196	A3	19 January 1994
				IL	104449	D0	13 May 1993
				MA	22803	A1	01 October 1993
				PL	297750	A1	02 November 1993
				RO	108239	B1	31 March 1994
CN	106316962	A	11 January 2017	WO	2017036266	A1	09 March 2017
JP	2004284970	A	14 October 2004	JP	4358539	B2	04 November 2009

国际检索报告

国际申请号

PCT/CN2019/074315

A. 主题的分类

C07D 237/14(2006.01)i; C07D 401/04(2006.01)i; C07D 401/10(2006.01)i; C07D 417/10(2006.01)i;
C07D 405/10(2006.01)i; C07D 401/14(2006.01)i; C07D 417/14(2006.01)i; C07D 405/04(2006.01)i; C07D
417/04(2006.01)i; C07D 403/04(2006.01)i; C07D 403/10(2006.01)i

按照国际专利分类(IPC)或者同时按照国家分类和IPC两种分类

B. 检索领域

检索的最低限度文献(标明分类系统和分类号)

C07D; A01N

包含在检索领域中的除最低限度文献以外的检索文献

在国际检索时查阅的电子数据库(数据库的名称, 和使用的检索词(如使用))

CNABS, CPRSABS, CNKI, DWPI, SIPOABS, CAPLUS, REGISTRY:哒嗪, pyridazine, 除草剂, herbicide, structure
search

C. 相关文件

类 型*	引用文件, 必要时, 指明相关段落	相关的权利要求
X	Alexandra Feraldi-Xypolia, et.al. "Synthesis of Functionalized 4-Fluoropyridazines" Asian J. Org. Chem., 第6卷, 第7期, 2017年 6月 1日 (2017 - 06 - 01), ISSN: 2193-5807, 第927-935页	8
A	CN 1543455 A (三共农业株式会社) 2004年 11月 3日 (2004 - 11 - 03) 参见说明书全文	1-18
A	US 5362708 A (AGROLINZ AGRARCHEMIKALIEN) 1994年 11月 8日 (1994 - 11 - 08) 参见说明书全文	1-18
A	US 5616789 A (MONSANTO CO) 1997年 4月 1日 (1997 - 04 - 01) 参见说明书全文	1-18
A	CN 1075477 A (林茨农药有限公司) 1993年 8月 25日 (1993 - 08 - 25) 参见说明书全文	1-18
A	CN 106316962 A (中国科学院上海有机化学研究所) 2017年 1月 11日 (2017 - 01 - 11) 参见说明书全文	1-18

☒ 其余文件在C栏的续页中列出。☒ 见同族专利附件。

* 引用文件的具体类型:

“A” 认为不特别相关的表示了现有技术一般状态的文件

“E” 在国际申请日的当天或之后公布的在先申请或专利

“L” 可能对优先权要求构成怀疑的文件, 或为确定另一篇引用文件的公布日而引用的或者因其他特殊理由而引用的文件 (如具体说明的)

“O” 涉及口头公开、使用、展览或其他方式公开的文件

“P” 公布日先于国际申请日但迟于所要求的优先权日的文件

“T” 在申请日或优先权日之后公布, 与申请不相抵触, 但为了理解发明之理论或原理的在后文件

“X” 特别相关的文件, 单独考虑该文件, 认定要求保护的发明不是新颖的或不具有创造性

“Y” 特别相关的文件, 当该文件与另一篇或者多篇该类文件结合并且这种结合对于本领域技术人员为显而易见时, 要求保护的发明不具有创造性

“&” 同族专利的文件

国际检索实际完成的日期

2019年 4月 9日

国际检索报告邮寄日期

2019年 5月 6日

ISA/CN的名称和邮寄地址

中国国家知识产权局 (ISA/CN)
中国北京市海淀区蓟门桥西土城路6号 100088

传真号 (86-10)62019451

受权官员

费嘉

电话号码 (86-10) 62084376

C. 相关文件

类 型*	引用文件，必要时，指明相关段落	相关的权利要求
A	JP 2004284970 A (SANKYO AGRO KK) 2004年 10月 14日 (2004 - 10 - 14) 参见说明书全文	1-18

国际检索报告
关于同族专利的信息

国际申请号

PCT/CN2019/074315

检索报告引用的专利文件			公布日 (年/月/日)	同族专利			公布日 (年/月/日)
CN	1543455	A	2004年 11月 3日	CN	1543455	B	2012年 7月 11日
				KR	100879693	B1	2009年 1月 21日
				EP	1426365	B1	2009年 7月 15日
				JP	W02003016286	A1	2004年 12月 2日
				KR	20040050061	A	2004年 6月 14日
				WO	03016286	A1	2003年 2月 27日
				ES	2330089	T3	2009年 12月 4日
				EP	1426365	A4	2004年 12月 8日
				US	2010041555	A1	2010年 2月 18日
				EP	1426365	B9	2009年 10月 21日
				US	7964531	B2	2011年 6月 21日
				CA	2457575	C	2010年 12月 21日
				TW	I254708	B	2006年 5月 11日
				US	2005037925	A1	2005年 2月 17日
				EP	1426365	A1	2004年 6月 9日
				KR	20080097494	A	2008年 11月 5日
				AU	2002327096	B2	2007年 11月 22日
				CA	2457575	A1	2003年 2月 27日
				KR	100910691	B1	2009年 8月 4日
				US	7608563	B2	2009年 10月 27日
				DE	60232981	D1	2009年 8月 27日
US	5362708	A	1994年 11月 8日	DE	59104924	D1	1995年 4月 20日
				PL	289726	A1	1992年 5月 18日
				PT	97249	A	1992年 1月 31日
				PT	97249	B	1998年 7月 31日
				NO	911113	A	1991年 10月 7日
				HU	209622	B	1994年 9月 28日
				GR	3015561	T3	1995年 6月 30日
				EP	0450359	A1	1991年 10月 9日
				AT	397598	B	1994年 5月 25日
				FI	911450	A0	1991年 3月 26日
				CS	9100949	A3	1992年 12月 16日
				CA	2037122	A1	1991年 10月 6日
				PL	166779	B1	1995年 6月 30日
				YU	61291	A	1994年 5月 10日
				JP	H04221302	A	1992年 8月 11日
				IE	66046	B1	1995年 12月 13日
				BG	60602	B1	1995年 10月 31日
				EP	0450359	B1	1995年 3月 15日
				DK	0450359	T3	1995年 4月 3日
				RU	2054871	C1	1996年 2月 27日
				FI	911450	A	1991年 10月 6日
				HU	T56695	A	1991年 10月 28日
				NO	911113	D0	1991年 3月 20日
				ES	2070355	T3	1995年 6月 1日
				IL	97433	A	1995年 5月 26日
				IE	910798	A1	1991年 10月 9日
				RO	109147	B1	1994年 12月 30日
				AT	A80790	A	1993年 10月 15日
				AT	119740	T	1995年 4月 15日

表 PCT/ISA/210 (同族专利附件) (2015年1月)

国际检索报告
关于同族专利的信息

国际申请号

PCT/CN2019/074315

检索报告引用的专利文件			公布日 (年/月/日)	同族专利			公布日 (年/月/日)
				IL	97433	D0	1992年 6月 21日
US	5616789	A	1997年 4月 1日	US	5623072	A	1997年 4月 22日
CN	1075477	A	1993年 8月 25日	HU	T64042	A	1993年 11月 29日
				AU	647687	B2	1994年 3月 24日
				MD	940047	A	1995年 8月 31日
				JP	H069574	A	1994年 1月 18日
				BG	97448	A	1994年 3月 24日
				SI	9300085	A	1993年 9月 30日
				AT	397085	B	1994年 1月 25日
				BR	9300589	A	1993年 8月 24日
				US	5462914	A	1995年 10月 31日
				MX	9300855	A	1993年 8月 1日
				ZA	9300648	B	1993年 9月 2日
				NZ	245706	A	1994年 11月 25日
				AT	A25892	A	1993年 6月 15日
				AU	3302893	A	1993年 8月 19日
				TR	26712	A	1995年 5月 15日
				HR	P930192	A2	1995年 12月 31日
				EP	0556647	A1	1993年 8月 25日
				HU	9300425	D0	1993年 5月 28日
				ZA	9300648	A	1993年 9月 2日
				JO	1744	B1	1993年 10月 30日
				TW	221369	B	1994年 3月 1日
				EE	9400149	A	1995年 12月 15日
				CA	2089451	A1	1993年 8月 18日
				LV	10152	A	1994年 10月 20日
				SK	9593	A3	1993年 9月 9日
				CZ	9300196	A3	1994年 1月 19日
				IL	104449	D0	1993年 5月 13日
				MA	22803	A1	1993年 10月 1日
				PL	297750	A1	1993年 11月 2日
				RO	108239	B1	1994年 3月 31日
CN	106316962	A	2017年 1月 11日	WO	2017036266	A1	2017年 3月 9日
JP	2004284970	A	2004年 10月 14日	JP	4358539	B2	2009年 11月 4日

表 PCT/ISA/210 (同族专利附件) (2015年1月)